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Report*

All India Institute of Medical Sciences



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India

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AIIMS

INFORMATION AT A GLANCE 1988-89

Year of Establishment	1956
Teaching and Research Departments	40
No. of Faculty Members	328
No. of Undergraduate Students	260
No. of Postgraduate Students	513
Postgraduate and Post-doctoral Specialities	55
AIIMS Graduates upto March 1989	1395
AIIMS Postgraduates upto March 1989	3131
Hospital Services	
<i>No. of patients attended in O.P.D.</i>	
Main Hospital	1105125
Speciality Centres	
(1) Dr. R.P. Centre for Ophthalmic Sciences	298779
(2) Institute-Rotary Cancer Hospital	31701
(3) Cardiothoracic Centre	56754
(4) Neurosciences Centre	44333
<i>No. of patients admitted</i>	
Main Hospital	43966
Dr. R.P. Centre for Ophthalmic Sciences	9695
<i>No. of Surgical Procedures</i>	
Main Hospital	77907
Dr. R.P. Centre	12353
Neurosciences Centre	1464
Cardiothoracic Centre	1890
<i>No. of Rural Eye Camps held</i>	
	25
Patients examined	22502
Patients operated	2452
<i>General Beds</i>	
Main Hospital	751
(Non-Dieted)	(NON-DIETED) 108
Dr. R.P. Centre	212
C.N. Centre	238
<i>Paying Beds</i>	
Main Hospital	65
Dr. R.P. Centre	11

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Chapter 1

DIRECTOR'S REVIEW

The All India Institute of Medical Sciences (AIIMS) was created with the objective of developing patterns of teaching at the undergraduate and postgraduate level and to bring together at one place educational and training facilities to make the country self sufficient in medical education. With this objective in mind the AIIMS has gradually been expanding its teaching facilities. In the previous year AIIMS created a department of biotechnology. In the year under review (1988-89) three new departments have been added namely i) the department of Hematology ii) the department of Laboratory Medicine and iii) the department of Nephrology. At present AIIMS has six centres, 33 departments and a college of nursing for providing educational facilities. The educational facilities cover both medical and paramedical areas and are continuing to expand as the need arises. The thirty third annual report identifies work done during the year in the fields of teaching, patient care and research. Some of the highlights of the three areas are indicated below.

EDUCATION

There has been no change in the basic pattern of undergraduate education consisting of one year of preclinical, one and one half year paraclinical and two years of clinical training followed by one year of rotatory internship. The degree of MBBS is awarded after five and one half year's training which includes spending six months in the Comprehensive Rural Health Project at Ballabgarh.

Fifty students were admitted to the MBBS course and 25 to the B.Sc. (Hons) course in human biology. The selection to both courses is through an all India competitive examination. Selected students include

seven schedule caste and four schedule tribe students and five nominees from foreign countries. A total of 260 MBBS students were on the rolls as of March 1989. The total number of graduates of AIIMS till now is 1395.

For the post graduate courses 199 students were admitted. The total strength of the post graduates as of March 31, 1989 was 513, almost double than the undergraduates. This is consistent with the objectives of the AIIMS since it is expected to provide post graduate training facilities in all branches of medical specialisation. The total number of postgraduates who have qualified from AIIMS till now is 3131. The postgraduate studies include four D.M. courses, four M.Ch. courses, Ph.D., MD & M.S. in various departments and specialities as well as M.Sc. and Master of Hospital Administration.

Besides providing facilities for teaching and training of undergraduates, postgraduates and paramedical staff the Institute has initiated a training and orientation program for its own faculty this year. Two workshops on "Curriculum planning" and "Evaluation techniques" were organised for faculty involved with undergraduate education in a significant manner. A medical education technology program has been initiated with the visits of Prof. A. Stewart and R. Mcleese from Dundee college of medical education technology and a centre for medical education and technology is in the process of being staffed and established here.

The second All India Postgraduate examination was organised by AIIMS as per instructions of the Supreme Court of India. 14853 students appeared for MD/MS Diploma courses and 442 for MDS course. The successful candidates on the basis of this examination are enrolled in 25 percent of total seats in recognised medical and dental colleges in the country.

There are two nurses training courses at present:
i) B.Sc. Nursing (post certificate) and ii) B.Sc. (Hons) Nursing. Both courses provide over all training.

A need has been felt to introduce specialised training for nurses in specific areas such as nursing of Neurology and Neurosurgery patients as well as Cardiology and Cardiac surgery patients. This is specially important since special monitoring of these patients is now highly developed and infrastructure to impart this training is available at AIIMS.

The Institute is providing three paraprofessional training courses leading to B.Sc. (Hons) degree namely: i) Ophthalmic techniques ii) Medical technology in radiography and iii) Speech and hearing. The need for trained paraprofessional personnel is increasing. Plans to start training courses for technicians in Cardiothoracic Sciences and Neurosciences are being formalised to provide trained paraprofessional personnel in these areas also.

Besides training courses the faculty of AIIMS is involved in continuing education programmes for general practitioners, specialists as well as postgraduates held at and outside AIIMS. 19 workshops, seminars or update sessions were organised at the AIIMS during the year.

Lastly the AIIMS outreaches to the community and provides community health education through camps, radio and doordarshan programmes, besides the ongoing activity of services to the urban slums through the mobile units.

PATIENT CARE AND COMMUNITY SERVICES

The patient care load of AIIMS hospital is not only very heavy but also increasing each year. A total of 15,40,761 patients attended the out patients and speciality clinics. This number includes patients attending the Cardiothoracic Centre, Institute Rotary Cancer Hospital, Neurosciences Centre and R.P. Centre for Ophthalmic Sciences. A total of 57,085 patients were admitted in the hospital complexes during the year. The bed occupancy rate was 94.8% indicating

effective utilization of bed space. A total of 92,426 operations were performed during the year inclusive of major and minor operations. The net death rate of 3.2 is quite low considering the fact that AIIMS functions purely as a referral hospital and admits very sick patients as well as provides specialised services in the form of renal transplant, cardiac surgery neurosurgery, management of diabetic and hepatic complications and intensive care services of both general and specific nature.

The Cardiothoracic and Neurosciences Centres have become operational with the shifting of Cardiology, Cardiothoracic Surgery, Neurology & Neurosurgery beds to the Centres. The overall general bed strength has increased by 267 beds. Reorganization of space vacated by Neurosciences & Cardiothoracic sciences from the main hospital building is in progress so as to provide increased admitting facilities at the main hospital. In the R.P. Centre for Ophthalmic Sciences bed strength has increased to 300 this year.

The AIIMS patient care services have been further enhanced by the initiation of a Deaddiction Centre under the department of Psychiatry. The Centre became functional this year and is expected to provide deaddiction psychotherapy and rehabilitation services to addicts. The Deaddiction Centre is located at the Deen Dayal Uppadhyaya Hospital in West Delhi.

The specific patient care services and community oriented work of each department is listed with each department. Some of the highlights of these services are indicated below.

Besides the medical faculty, the nursing faculty and the paramedical staff have also been active in community education, vital for improving patient care services and creating awareness with respect to preventive & promotive medicine. Exhibition on World AIDS day were organised by the College of Nursing. . The students of Nursing College participated in youth training programmes, immunization camps, well baby shows and post partum camps.

National drinking water mission

Under the aegis of the Technology Mission on water, training cum awareness cum update camps for doctors, public health engineers, paramedical and voluntary health workers on toxic effects of fluoride in drinking water were held in six districts of Maharashtra, Tamil Nadu, Karnataka & Rajasthan. This would help control the toxic effects of fluoride in the various endemic areas of the country.

AIDS control and reference centre

The ICMR aided AIDS reference centre processed 1687 samples for screening for AIDS virus. Virus was isolated from five samples. Community education through talks given on AIR and Doordarshan would help in awareness regarding the danger from AIDS. The blood banks of the hospital as well as the C N Centre are now doing routine testing for AIDS before blood is issued for transfusion to patients.

Post partum and family welfare programme

Six orientation training camps, two well baby shows and a series of lectures were given on promotive and preventive aspects of maternal and child health in the community with special stress on family welfare and immunization. Composite programmes including film shows were held to convey the message of the family welfare programme.

Community care and control of diabetes

The programme has been initiated by a special fund from the Government of India. The national coordination is provided by AIIMS. Educational material for patients and primary health care workers has been prepared and distributed in various languages.

Neonatal intensive care

The facilities to monitor and manage new borns have been upgraded with the help of continuous positive airway pressure ventilation and other monitoring equipment.

Children with mental handicap

A school for children with mental handicap has been started in slum areas of Kalkaji. This is being run by the Genetic Unit of the Deptt. of Paediatrics as a DST Project. Pregnancies of mothers with mentally retarded children are also being monitored to prevent mental handicap in subsequent siblings.

Additional Radionuclide facilities

Two new methodologies have been introduced for investigating patients. A modified version of DMSA scanning of kidneys has been started. This consists of serial quantitative Tc-99m DMSA scanning (uptake study). It provides a clear cut guideline to the surgeon in patients with hydronephrosis. The second is regarding assessment of myocardial damage by antimyosin antibodies. The usefulness is already established in patients with myocardial infarction. The technique has been employed in the diagnosis of rheumatic and other myocarditis.

Lithotripsy

A renal lithotripsy machine has been installed and has become functional. It will help look after patients with renal calculi, on an outdoor basis, non-operatively.

Human cytogenetic laboratory

The laboratory caters for the diagnosis of hereditary disorders in utero, in childhood and at puberty. Programmes have been developed for screening of congenital malformations before birth to save families from the burden of handicapped children.

Camps

Besides the camps organised under the National drinking water mission, postpartum programme and community control of diabetes indicated above, other camps were organised by the faculty of AIIMS. These camps included i) one at Vrindavan for rehabilitation of rural disabled by the dept. of Rehabilitation & Artificial limbs ii) four cancer detection camps at Mathura, Haridwar and Roorkee by the Institute Rotary Cancer Hospital, iii) Twenty major and five minor camps by the R.P. Centre for Ophthalmic Sciences and iv) by the Centre for Community Medicine.

National deafness prevention programme

This three-year program is to provide integration of activities in areas of prevention and correction of hearing impairment using primary health care approach through existing infrastructure.

In an earlier phase, screening of sample population in Mehrauli and Alipur areas (experimental and control areas respectively) was carried out for prevalence of deafness. The health education material was prepared and distributed, Primary health workers and teachers in the local schools were trained, drug distribution for prompt treatment of upper respiratory infection was started. Baseline survey has been completed in both control and experimental areas. Health education programme beginning from distribution of posters, booklets (better ear care), staging the video shows has been carried out intensively.

Integrated child development services (ICDS)

The ICDS programme has been extended to another 159 blocks, the total number of blocks covered at present is 1952. Operational research studies are initiated from time to time. 12 rounds of annual surveys covering 527 projects have been completed. Reports have been provided to nodal ministries at the Centre and other concerned departments in the States for appropriate

interventions based on the research data. AIIMS functions as the head quarters of the Central Technical Committee for the programme.

National programme for control of blindness (NPCB)

For the NPCB programme AIIMS is the apex body organizing surveys for the assessment of number as well as causes of blindness, providing health education, assess manpower requirements for eye care and carrying out research in the field.

RESEARCH

The research activities of each department are included under three headings: research completed, research continuing and new research projects. Since many research projects are interdepartmental collaborative undertakings, they have been put together at the end under collaborative research completed and continuing. An evaluation of various departmental reports identifies the amount of research activities going on at AIIMS. As the facilities increase, newer areas of research are being initiated.

Many research activities utilised imported materials and reagents. One such area is the use of monclonal antibodies which are now being used extensively in many areas of research in immunological disorders. A centralised hybridoma laboratory has been initiated in the department of Biotechnology. Several promising hybrids producing anti beta HCG antibodies have been identified and are undergoing specificity testing by radioimmunoassay. Monoclonal antibodies against non A, non B hepatitis virus are also being processed.

With the establishment of this technique we expect to become self sufficient in raising monoclonal antibodies.

Ethics Committee

Research projects involving patients have to be cleared by the ethics committee of the AIIMS. Members of the ethics committee are:

Prof. P.N. Wahi	Chairman
Mr. Justice G.D. Khosla	Member
Dr. P.S. Gupta	Member
Dr. (Mrs.) V. Hingorani	Member
Dr. B.N. Dhawan	Member
Dr. H.D. Tandon	Member
Dr. M.M.S. Ahuja	Member
Dr. J.S. Bajaj	Member
Dr. B.M.L. Kapoor	Member
Dr. S. Roy	Member Secretary (upto 31.1.89)
Dr. S.D. Seth	Member Secretary (w.e.f. 1.2.89)

✓ Highlights of some of the research activities at AIIMS are indicated below.

Developing human visual cortex (area 17)

Golgi Cox and immunohistochemical techniques have been used to elucidate morphological development of visual cortex. At 14-15 weeks, large number of bipolar cells oriented vertically and having numerous varicosities on their dendrites are seen in the cortical plate. Well developed Cajal Retzius cells are seen horizontally placed in the 'marginal zone. At 24-25 weeks bipolar cells are seen in the superficial layers of cortical plate while the deeper layers have mature

cells with triangular profile and simple dendritic pattern. At 32 weeks pyramidal and stellate cells are identifiable with more complex dendritic arborization. Immunohistochemical localisation of substance P and serotonin has revealed immuno-positive fibres in the intermediate zone at 16 weeks of gestation which increase in number with increasing age, and by the 22-23 weeks the number of fibres is found to decrease.

Volumetric growth and synaptic profile of prenatal human lateral geniculate nucleus (LGN)

It has been observed that the total volume of human LGN increased from 5.04 cu.mm at 13-14 weeks to 39.04 cu.mm at 34-35 weeks. This represents a seven and a half times increase in volume over the period of 22 weeks. The synaptic density is found to be 0.3×10^6 , 1.37×10^6 and 1.55×10^6 at 13-14, 17-18 and 25-26 weeks respectively while the estimated total synapse counts at these ages are 1.5×10^6 , 21.6×10^6 and 33.66×10^6 .

Immunohistochemical studies on the afferents to dorsolateral geniculate nucleus in albino rat

The neuropeptide substance P (SP) profile has been studied in albino rats of 5 days to 40 days postnatal age. The SP immunoreactivity is present in the ventral lateral geniculate nucleus (VLGN) and intergeniculate leaflet in all the age periods studied, in the form of a plexus of terminal fibres. In the dorsolateral geniculate nucleus SP immunoreactivity is much less compared to VLGN and is seen as fibres running vertically through the nucleus. The different amount and pattern of this neurotransmitter may be related to the different functions of these two parts of the lateral geniculate complex.

MPTP model of Parkinson's disease in rhesus monkey (Anat, NSC)

Both hemiparkinson and total Parkinson models of rhesus monkey are produced by systemic and unilateral intracarotid injection of 1-methyl, 4-phenyl-1-2-3-6

tetrahydroxy pyridine (MPTP). Bilateral or unilateral rigidity of limbs, tremour and difficulty to handle food were noticed in these monkeys. There was neuronal loss in the substantia nigra according to the aminergic fluorescence, morphological characteristics and cell counts when compared to the control primates or the unaffected side in the hemiparkinson model. A large number of degenerating neurons could be seen during the early period of the study confirming the neuronal loss following MPTP treatment.

Transplantation of fetal substantia nigra in the MPTP model of Parkinson Primates (Anat, NSC)

One monkey from each total and hemi Parkinson models was transplanted with fetal substantia nigra of 55 gestation day into the striatal region. Both the animals showed perceptible recovery from the signs after 3 weeks of transplantation. Dopaminergic neurons were identified in striatum of these animals.

Growth and differentiation of mouse mammary glands in organ culture

An experimental model of mouse mammary gland organ culture with long term maintenance (about 6 weeks) has been developed. This would facilitate in vitro studies on carcinogenesis using chemical carcinogens and those on the nature and extent of hormonal involvement in this process. Possibility of long term organ culture of mouse mammary glands has been demonstrated perhaps for the first time. Salient observations on the studies have been reported in the earlier report.

Matched assay reagents and quality control programme for radioimmunoassay of reproductive hormones

Development and distribution of well characterized, specific antisera against estradiol, progesterone and testosterone is being continued. The programme has not only made the country self-sufficient in these reagents but has also led to the savings of more than Rs. 50 lakhs of foreign exchange. Further, the parameters for development of RIA kits have been

worked out and their stability at different temperatures, specially the high temperature prevailing in the northern part of the country during the summer months has also been tested. These kits have been found to be quite stable at these temperatures. Efforts are in progress to make the kits in greater numbers and supply them to the Regional Medical Colleges and Institutions for better patient care.

Kainic acid lesion and transplantation in the preoptic area in rat (Anat, NSC, Physiol)

Lesion of the preoptic area using Kainic acid was confirmed by studying the changes in the body temperature and vaginal cyclicity. These rats had lower body temperature and steeper rise in the temperature following exposure to hot environment. Persistent vaginal cell cornification was also seen.

There was recordable recovery of both these parameters following transplantation of fetal preoptic area in these animals when compared to the control rats with the lesion.

Structure analysis of bacterial enzyme DHPS and designing of its inhibitors

The enzyme Dihydropteroate Synthase (DHPS) catalyses the formation of dihydrofolic acid from para amino benzoic acid. Sulfonamides inhibit the DHPS enzyme competitively and cause bacteriostasis. It is a key enzyme in the biochemical multistep pathway of folic acid synthesis. It has been found that a substitution at sulfonilamido site leads to no change in the molecular dimensions of sulfonamides but leads to the significant conformational changes thus providing a key site for designing more potent anti-bacterial agents based on conformation. The therapeutic data on sulfonamides have clearly indicated the differences in their efficacies. The final result of the project has provided a series of potent sulfonamides designed according to their conformations.

Biofeedback as an intervention procedure in the management of epilepsy

Base line data was collected on 27 patients of epilepsy with respect to their history, clinical findings, serum drug levels, EEG and frequency analysis (FA). Seven patients in whom FA was done, showed prominence of low frequency rhythm of EEG. The EEG and FA data from normal controls showed prominence of alpha rhythm of EEG. Designing and fabrication of sensorimotor rhythm (SMR) Biofeed back equipment has been completed and the effect of biofeedback on epilepsy will be examined with respect to its possible role in treatment.

Steroid receptors in rhesus monkey endometrium during early gestation

The role of estrogen in blastocyst implantation is controversial. In our studies using the rhesus monkey as the primate model, we have shown that preimplantation endometria show a higher absolute level and a varying profile of estrogen receptors. We speculate that the change in receptor dynamics qualifies as an early maternal recognition of the presence of preimplantation stage conceptus. Studies are in progress with an antiestrogen, tamoxifen, to evaluate its potential application in fertility regulation by interfering with the process of implantation.

Evaluation of coarse cereals for diabetics

Coarse cereals, with their high fibre content, may be expected to have a weak glycaemic response, and hence to be suitable for use in diabetic diets. The mean plasma incremental glucose (mg/100 ml) response to a 50 g carbohydrate portion of bajra 0.5h after ingestion was 33.2 in nondiabetics and 56.1 in diabetics compared to 48.0 and 64.1 respectively for a 50 g-carbohydrate portion of white bread. The corresponding values for plasma insulin (μ /ml) were 42.7 and 16.8 for bajra and 39.5 and 11.3 for bread in

nondiabetics and diabetics respectively. Studies with other cereals are in progress.

RECOMBINANT DNA TECHNOLOGY

a) Leprosy

The 4 recombinant clones of M.leprae labelled LSR 1,2,3,4 reported earlier by us have been partially characterised. All clones produce 135 KD fusion protein, do not hybrise with the 5 known clones identified in the international laboratories using monoclonal antibodies. The protein does not react with antibodies to heat shock proteins. Thus these clones appear to be unique. Attempts have begun to sequence the DNA of LSR 1 and 2.

b) Malaria

We have constructed two gene libraries for P.vivax using two different lambda vectors namely, EMBL and labda gt11. Work has begun on screening of these two libraries using (1) DNA probes (Knob protein gene and heat shock protein gene from P.falciparum) and (2) antibodies obtained from malarial patients suffering from vivax infection.

Polyclonal antibodies have been raised against the recombinant clone synthesizing heat shock protein. This anti-heat shock protein antibody for African isolate of P. falciparum reacted strongly with Indian isolate indicating that some common antigenic epitopes are conserved among these two distinctly related isolates. The same recombinant clone has also been used to immunize mice in order to raise monoclonal antibodies.

The knob protein gene from the Indian isolate and Honduran isolate of P. falciparum is under investigation. A 15 Kb EcoRI fragment of Indian isolate is identified which hybridized with previously cloned knob protein gene from African isolate. Cloning of this EcoRI fragment in lambda charon 4A is in progress. Taq I fragment from knob protein gene of

Honduran isolate has been subcloned into the bacteriophage M13, MP18 and MP19 vectors for nucleotide sequencing. This Taq I fragment codes for histidine-rich domain of this protein.

c) Tuberculosis

Construction of M. tuberculosis gene bank: Fragments approximately 2-4 Kb in size generated by partial Sau3A digestion of M.tuberculosis H37 Rv DNA were cloned into the BamHI site of the E.coli plasmid vector pUC8. A DNA library with 98 percent probability of complete genome representation has been prepared.

Bacteriological study of pyodermas with special emphasis on anaerobic bacteria (Dermat.Microbiol)

Out of 100 pus samples cultured from pyodermal lesions, Staphylococcus aureus (45%) and beta haemolytic Streptococcus (BHS) (32%) were isolated commonly. Antimicrobial sensitivity of 71 Staph. aureus isolates showed 38.3% resistance to erythrocine. 85.7% BHS group A could be typed by T agglutination patterns. Three BHS strains belonged to group G and one to group D. Five pus specimens yielded obligate anaerobes mixed with aerobes. Bacteroides melaninogenicus/asaccharolyticus was isolated in 4 of the 5 samples positive for anaerobes. This is the first report in Indian literature on a study of anaerobes in pyoderma patients.

Evaluation of dipstick ELISA for demonstration of Entamoeba histolytica antibody from clinical samples

A dipstick ELISA has been developed for rapid demonstration of antibody to E.histolytica in serum. 55 clinically suspected cases of amoebiasis were studied along with 59 controls. Results of dipstick ELISA were compared with IHA. A significant correlation was demonstrated in the results obtained by both the methods. Moreover the test was easy to perform and the entire assay could be completed within one hour.

Development and evaluation of capture ELISA for rubella IgM antibody

Rubella antigen was prepared by growing the virus in vero cells followed by concentration by ultracentrifugation. Antisera to rubella virus was raised in rabbits and IgM fraction was separated by DEAE column chromatography. This IgG fraction was conjugated with horse radish peroxidase. The optimal dilution of conjugate was titrated and capture ELISA was standardised. It was evaluated on 52 samples with commercial capture EIA kit from Northumbria biologicals UK. With both the kits the results were similar i.e. only 5 samples showed the presence of rubella IgM antibodies at 1:100 dilution. Of the five samples 4 were from children having congenital infections and one was from a pregnant mother with history of fever and rash.

Cloning of HSV DNA fragments by recombinant DNA technique and use of cloned DNA to detect HSV-DNA in human cervical biopsies by DNA-DNA hybridization

Biopsies from 115 patients with cervical cancer and 42 patients with cervical dysplasia/chronic cervicitis were analysed for the presence of HPV-16 and 18 DNA and HSV-2 Bgl II N fragment DNA by Southern blot hybridization and Dot blot hybridization under non-stringent and highly stringent conditions. 82.6% biopsies from cervical cancer had HPV-16 DNA. 15.7% of these biopsies also contained HPV 18-DNA, HSV-2 Bgl II N fragment sequences were present in 12.2% of these biopsies. In contrast, only 28.6% biopsies from chronic cervicitis and cervical dysplasia had HPV DNA and 11.9% had HSV II sequences. Cervical scrapings from 90 women attending Gynaecology out patients for ailments other than malignancy of genital tract were examined for the presence of HPV-DNA by dot blot hybridization. 5.5% samples were positive for HPV 16 & 18.

Screening of cervical cancer biopsy tissues for evidence of human papilloma virus 16 (HPV-16) and 18 (HPV-18) DNA by DNA-DNA hybridization

Biopsies from 166 patients with cervical lesions were collected. DNA was extracted from all the biopsies and digested with Bam H-1/EcoR-1 before electrophoresis and transferring onto nylon membrane. HPV-6, 11, 16, 18, 31, 33 & 35 DNAs were made vector free with specific restriction endonucleases and nick, translated in the presence of 32 PdCTP and TTP to the specific activity of approximately 1×10^8 CPM/ μ g DNA.

Southern blot hybridization revealed the presence of HPV DNA in 86/110 (78.2%) biopsies from patients with malignant lesions of cervix and in 13/56 (23.2%) biopsies from non-malignant cervical lesions.

By dot blot assay 53/70 (75.7%) biopsies from patients with malignant lesions. and 7/31 (22.6%) biopsies from non malignant lesions had HPV-DNA sequences.

CDNA cloning of human rotavirus gene segments and their use in detection and characterization of human rotavirus infection

The project was initiated in March 1988. During the current year we propagated all the 5 serotypes of human rotavirus in MA 104 cells to a high titre. RNA was extracted from these tissue culture grown viruses. 310 stool samples were collected from children <5 years age who presented to be hospital with acute diarrhoea. Rotavirus was detected in 38 out of 310 stool samples by direct ELISA. RNA migration pattern of 30 samples was studied by PAGE. Recombinant plasmid containing cloned cDNA of SA-11 gene segment 6 was obtained from Dr. Mary Estes. Dot blot hybridization using 32 p labeled gene 6 probe was done in 76 samples. Most of the samples which were positive by ELISA were also positive by Dot blot hybridization. C-DNA cloning from SA-11 rotavirus RNA is in progress.

Immunohistochemical localization of keratin proteins in tumour diagnosis

Significant findings were as follows: (i) Commercially available DAKO polyclonal rabbit antiserum to human keratin gave good results on routine paraffin embedded tissue. (ii) It was useful in distinguishing squamous cell carcinomas (23) transitional cell carcinomas (6) and mesotheliomas (1) which stained positive, from lymphomas and mesenchymal tumours (10 and 6 cases respectively) which stained negative for keratin. (iii) Adenocarcinomas (21) showed variable staining, from negative (13) to faintly positive (7) to strongly positive (1). (iv) As the only keratin positive adenocarcinoma was an infiltrating duct carcinoma of the breast 12 other breast carcinomas were stained. For comparison, 7 cystadenocarcinomas of the ovary were also studied. (v) One of 7 ovarian adenocarcinomas and 3 of 12 breast carcinomas stained definitely positive for keratin. Thus keratin stain on adenocarcinomas does not appear to be of diagnostic help if paraffin embedded tissue is used.

Keratin stain was most useful in distinguishing poorly differentiated carcinomas (8 of 12 were strongly positive) from histiocytic lymphomas which were almost invariably negative.

Other tumours which were found to be negative for keratin were melanomas (4) pheochromocytoma (1), astrocytoma (1) and benign nerve sheath tumour (1).

Immunoelectron microscopy and culture of pituitary adenomas (Endocrin, NSC, Path)

Ten cases of mixed GH and PRL secreting adenomas were studied using double labelling IEM.. Colloidal gold particles of 10 nm and 20 nm size were used for localization of PRL and GH respectively. Six patients presented with acromegaly alone while four presented with acromegaly, amenorrhea and galactorrhea. All had raised serum GH and PRL levels. By IEM, some secretory granules were unbound, some others showed only PRL or GH binding but the majority (50 to 96%) showed double

labelling for GH and PRL. These cells containing both hormones often within the same secretory granule are called mammosomatotrophs and these tumors as mammosomatotroph adenomas. Our work suggests that mammosomatotroph adenomas are not uncommon, as reported by others.

Twelve cases were studied by tissue culture for a period of about 4 weeks. Nine were from acromegalics and all secreted PRL in addition to GH into the medium. Therefore, it appears that some mammosomatotroph cells are present in all GH secreting adenomas.

The occurrence of mammosomatotrophs refutes the "one cell - one hormone" hypothesis. It raises the possibility of simultaneous gene activation for GH and PRL in a single cell.

Corpora amylacea: An immunohistochemical, ultrastructural, immunoelectron microscopic and morphometric study (NSC, Path)

Corpora amylacea (CA) in brain from 10 cases were studied by light microscopy, immunohistochemistry using antibody against glial fibrillary acidic protein (GFAP) along with their morphometric measurements and electron microscopy (EM). Immunoelectron microscopy (IEM) using colloidal gold particles was also performed. By IEM, some CA were completely negative while others showed varying degrees of positivity. IEM confirmed the presence of GFAP in all CA.

From the present study, it is suggested that CA formation starts with the accumulation of intracytoplasmic GFAP negative material in astrocytes which gradually increases in size. The accumulation may be multifocal in origin, later coalescing to incorporate adjacent glial filaments or the accumulated material may gradually encroach on to the surrounding glial filaments. The glial filaments thus incorporated disintegrates and gets inseparably mixed with the amorphous matrix of corpora. The present study clearly demonstrates that GFAP does enter into the constitution of the corpora amylacea.

Analysis of childhood tumors with special reference to tumors of neural crest origin (NSC, Path)

All solid malignant tumors occurring in children aged 15 and below between 1977 and 1986, obtained from the records of the department, were analyzed with respect to their relative incidence, histologic type as well as age and sex distribution.

The total number of tumors during this period was 880. A marked overall male preponderance was present. The commonest were malignant lymphomas accounting for 25.6% of the total, Hodgkin's lymphoma being much more frequent than non-Hodgkin's type and a majority occurred between 6 and 15 years of age. The next common were the tumors of the central nervous system (22.5%). Astrocytomas were the commonest CNS tumor followed by medulloblastoma. The peak age incidence was 11 to 15 years for astrocytomas and 6 to 10 years for medulloblastomas. Soft tissue sarcomas and bone tumors were next in frequency accounting for 13.3% and 9.2% respectively. Nephroblastoma, neuroblastoma and retinoblastoma formed only 6.5%, 4.1% and 3% respectively of all the solid tumors. Gonadal tumors and carcinomas were very rare.

Eighty tumors of neural crest origin (18 neuroblastoma, 5 ganglioneuroblastoma, one ganglioneuroma, 5 olfactory neuroblastoma, 7 retinoblastoma, 14 pheochromocytomas, 4 paragangliomas, 14 malignant melanomas, 2 melanotic neuroectodermal tumor of infancy and 10 neuroendocrine tumors like oat cell carcinoma and carcinoid) were studied by immunohistochemical staining using antibodies to S-100 protein neurofilament protein of 200-Kd mol.wt. and glial fibrillary acidic protein (GFAP). It was found that neurofilament of 200-kd. molecular weight is of no use in diagnosis of undifferentiated neuroblastomas on formalin fixed paraffin embedded tissues.

S-100protein was positive in the tumor cells and satellite/sustentacular cells of neuroblastoma and its variants, pheochromocytoma, paraganglioma, olfactory

neuroblastoma, retinoblastoma, malignant melanoma and melanotic neuroectodermal tumor of infancy. This common marker of tumors of diverse morphology is suggestive of their common origin from neural crest. The neuroendocrine tumors were negative for S-100 and their origin from neural crest remains debatable.

Endomyocardial biopsy study in acute rheumatic fever (Card., Path.)

The project was initiated with the objectives of: i) evaluating histopathological and immunohistochemical characteristics of acute rheumatic myocarditis in man, before and after institution of immunotherapy. ii) to evaluate the diagnostic role of endomyocardial biopsies in acute rheumatic fever and iii) to compare immunohistochemical picture in peripheral blood and endomyocardial biopsy in an attempt to understand the pathogenetic mechanisms. The first ever prospective study of its kind was conducted on 70 patients of rheumatic fever. The study has identified specific and nonspecific features for rheumatic myocarditis and has established biopsy as a safe and diagnostic procedure in rheumatic fever. It has demonstrated macrophage origin of Aschoff cells and possible antigen presenting or cytotoxic role for these cells. Cytotoxicity has been suggested as possible mechanism for carditis. Ongoing myocarditis has been demonstrated even 12-24 weeks after the institution of immunotherapy recommending reappraisal of immunotherapy.

Experience with percutaneous transluminal coronary angioplasty (PTCA) - A follow up study (Card, Card. Radiol)

180 patients have undergone PTCA during the period (Nov 1986 March 1988), 33% had multiple vessel disease. The primary success rate for single vessel disease was 93%, for multivessel disease with 'culprit' vessel dilatation 93.5% and for multiple vessel disease with multiple dilatation 87%. Emergency CABG was required in 2.6% patients 3% of patients with acute abrupt closure were treated with repeat angioplasty. The symptomatic & objective evidence of ischemia

alleviation was very gratifying. During the follow up period 30 patients, have been restudied, 10 had evidence of restenosis, 8 have been redilated successfully. The experience with PTCA at AIIMS has shown very encouraging short term results, restenosis is however emerging as a significant problem but it is amenable to redilatation.

Spatial vectorcardiogram in acute inferior wall myocardial infarction its utility in identification of patients prone to complete heart block(Card.)

Spatial vectorcardiography was performed in 28(22 male, 6 female: Age 36-78 years) consecutive cases of acute inferior wall myocardial infarction during sinus rhythm within 24 hours of admission. During the hospital course, 15 patients developed transient complete heart block and 13 patients did not. The direction of QRS loop inscription in the 3 planes did not differ between the two groups. The values for elevation angle of spatial 'R' max cardiac vector were markedly different between the two groups. The spatial R maximum elevation angle ranged from 0 to -35°, was negative superiorly directed in 14 of the 15 patients with complete heart block whereas it ranged from -10° to +75° was negative (superiorly directed) in only 2 of the 13 patients without this complication. Thus it appears that negative elevation angle of spatial R maximum cardiac vector in patients of inferior wall myocardial infarction may indicate proneness to complete heart block.

Aluminium phosphide poisoning clinical toxicity and outcome in eleven intensively monitored patients(Card.)

Eleven consecutive patients with severe toxicity to aluminium phosphide were prospectively studied. Following admission into an intensive care unit they underwent continuous haemodynamic monitoring which included Swan-Ganz and intra-arterial catheterization. Two hourly haematocrit estimation, radionuclide ventriculography and percutaneous endomyocardial biopsy were carried out in selected patients. Signs of early (first 24 hours) toxicity included severe acidosis,

severe peripheral capillary leakage, electrocardiographic and enzyme evidence of global myocardial injury and a depressed left ventricular ejection fraction. The most important manifestation of late (after 24 hrs) toxicity was the adult respiratory distress syndrome. Nine of the 11 patients died: 3 with progressive hypotension, 4 following adult respiratory distress syndrome, 1 after aspiration and 1 due to gastrointestinal bleeding.

Feasibility of using pedicled skeletal muscle for myocardial replacement (CTVS)

The study was intended to evaluate the function of an artificial ventricle designed by us and powered by the Latissimus Dorsi(LD) muscle to function as an auxillary ventricle in a buffalo calf. The results showed that the LD muscle was ideally suited for the purpose. It was conditioned by intermittent pacing for a period of six weeks , following this conditioning the muscle was dissected free, based on it's pedicle and transplanted into the thorax of a buffalo calf. An artificial ventricle was connected from the left atrium to the aorta. The LD muscle was wrapped around the artificial ventricle and stimulated. The muscle was able to sustain circulation through the artificial ventricle against the systemic resistance for a short period. A good pulse wave was obtained in the aortic tracing with stimulation of the LD muscle.

Immunological and histopathological studies on Oral Sub-mucous Fibrosis (OSMF) and it's comparison with progressive systemic sclerosis (PSS) and Morphea (Dent. Surg, Medicine, Path)

10 patients screened for serum auto-antibodies of the 2 cases had positive anti-nuclear antibodies (ANA). Serum albumin/globulin ratio was found to be altered in 90% due to increase in globulin level. Mucosal biopsies of OSMF were compared with the skin biopsies of PSS cases and were found to have striking similarities: epithelial atrophy with increased collagen deposition, sometimes with hyalinization in the dermis was found.

Role of thyroxine in Human brain development

A total of 54 human fetal brains from iodine sufficient and iodine deficient mothers, were analysed for T3, T4, rT3, 5-monodeiodinase, 5-monodeiodinase activity, T3 receptor concentration and affinity. These fetuses ranged from 10th to 25th weeks of gestation. 4 mothers had mean urinary iodine excretion (UIE) of 39 ug/gm of creatinine, 22 mothers had UIE of 64 ug/gm of creatinine and remaining 28 had mean UIE of 110 ug/gm of creatinine. They were classified as of moderate, mild and sufficient iodine status. This data, available for the first time in the world literature showed that T3 concentration, T3 receptor concentration and 5 monodeiodinase activity are maintained or increased in mild iodine deficiency in the brain during 15 to 22nd weeks of gestation - a period which coincides with neuroblastogenesis. This may be viewed as adaptive mechanism. However, as iodine deficiency became more severe inspite of 5-MDA activity and T3 receptor concentration being more, it failed to maintain T3 concentration during this period, indicating that as severity of iodine deficiency increases the adaptive mechanism fails. This underscores the immediate need for supply of iodine to severely iodine deficient regions of our country.

Monitoring and evaluation of iodine prophylaxis in U.P. - (DST)

Analysis of over 1700 randomly collected salt samples from retail outlets and households of 50 districts in U.P. showed less than 3 per cent of samples without iodine. Majority of the districts surveyed showed 'good' or 'satisfactory' levels of salt iodation. Over 2000 urine samples collected randomly from 16 districts showed that a vast majority of subjects excrete more than 50 microgram iodine per gram of creatinine in urine. Preliminary results of neonatal screening for hypothyroidism in Terai districts, 6 months to one year after salt iodation show decline in incidence from 99 per thousand to 13 (urban) and 18 (rural) per thousand births at 6 months to one year post-iodation.

Screening tests in platelet function disorders: evaluation & recommendation

In a study of 100 patients of platelet function disorders (PFD), the spectrum was: abnormalities in arachidonic acid pathway in 26, isolated PF3 availability defect with PF3 deficiency (thrombopathic thrombasthenia) in 28, storage pool disorder in 7, Glanzmann's thrombasthenia in 4, Bernard Soulier disease in one and isolated PF3 deficiency in one case. A panel of tests namely bleeding time (BT), prothrombin consumption index (PCI), stypven calcium time (SCT) with high (25 ug/ml) and low (10ug/ml) strength of Russell's viper venom (RVV) with both platelet rich plasma (PRP) and platelet poor plasma, platelet factor 3(PF3) availability with ADP and kaolin in 0' and 20' were done. The relative efficacy of various screening tests of hemostasis showed that in exclusive platelet function disorders uncomplicated by coagulation factor deficiency, a combination of BT, PCI, SCT with 10 ug/ml RVV in PRP and PF3 availability with ADP at 20 min proved most sensitive. Bleeding time showed least sensitivity (34.7%) and PF3 availability test with ADP at 20' being the most sensitive (90%) and SCT (with 10 ug/ml RVV with PRP) and PCI being abnormal in 56 and 69 patients, respectively. A combination of BT and PCI could detect 77% patients. When either SCT or PF3 availability was included, their sensitivity increased to 91% and 97%, respectively. All the 4 tests could detect 98% patients of PFD and are recommended as screening tests.

Conformational basis of the receptor-binding potency of normal and mutant insulin molecules (Biophys, Med)

Residues 23-26 (Gly-,Phe-,Tyr) of the B-chain of insulin constitute a critical area of the receptor-binding region of the molecule. Three chemically distinct mutant insulins have recently been identified in patients with NIDDM, each involving substitution of either B24 or B25 phenylalanine. Two of the mutations have been unambiguously characterized: a B25 phenylalanine-to-leucine substitution (B25 Phe - Leu),

and the other, a B24 phenylalanine-to-serine (B24 Phe - Ser). We have calculated the preferred conformations of normal and mutant insulins using a global optimization method developed by us earlier. The mutant insulins exhibit significant alterations in conformation and in the average distances between amino acid side-chains as compared to normal insulin. Therefore, the decreased binding affinity of mutant insulin could be either due to an alteration in the nature of the substituted residue (hydrophilic in place of hydrophobic) or to the alteration in one of more critical side-chain distances in the case of a hydrophobic to hydrophobic substitution.

A mathematical model for insulin kinetics II. Extension of the model to include response to oral glucose administration, and application to insulin - dependent diabetes mellitus (IDDM) (Biophys, Med)

A generalised nonlinear mathematical model which incorporates beta-cell kinetics, a glucose - insulin feedback system and a gastrointestinal absorption term for glucose, is presented. Numerical simulations using this model lead to time variations of plasma glucose and insulin levels that are consistent with clinical observations on normal groups. The results obtained after suitable reduction in some of the parameters are in agreement with the clinical profile and laboratory data in IDDM. Linear stability analysis of the equations shows that there is a change in the nature of the stability in the transition from the normal case to IDDM, and it is the decrease in the beta cell function which causes this change.

Bicarbonate hemodialysis system

Fifty patients of ESRD with cardiovascular unstability were treated by an indigenised method of bicarbonate dialysis system. The primary dialysis bath consisted of NaCl. & Na HCO₃ and the patients were infused by a cocktail of MgCl₂, KCl and CaCl₂, solution. Rate of infusion was precalculated on the basis of rate of loss during dialysis. Patients had a significant reduction in intradialytic hypotensive

spells, cardiac arrhythmias & vomiting, compared to those occurring during acetate dialysis.

An approach to reduce perinatal morbidity and mortality

Six hundred ultrasound scans were done in 150 women between 10-20 weeks of gestation to establish fetal norms in early fetal life (< 20 weeks) and to detect congenital anomalies of various body systems. The study standardised norms of fetal AVHR (anterior ventricular hemisphere ratio), PVHR (posterior ventricular hemisphere ratio), FKC/FAC (fetal kidney circumference), posterior nuchal thickness for early prenatal diagnosis and decision regarding fetal therapy or surgery or termination of pregnancy with a major congenital abnormality. The study established nomograms of AVHR, PVHR, FKC/FAC and nuchal thickness for the first time in India and laid the foundation of prenatal diagnosis and management in fetal medicine. Cardiomegaly, hydrocephalus, hepatomegaly, ascites, spina bifida, microcephaly, polycystic kidney, duodenal atresia, hydrops fetalis, skeletal dysplasia and Down's syndrome were detected and managed early.

Reduction in sepsis related neonatal mortality

The neonatal mortality rate per thousand live births dropped from 36.6 in 1985 to 23.9 in 1986. Neonatal sepsis ranked as number 2 as a cause of neonatal mortality in 1985, while it dropped to rank 4 (even lower than major malformations) in 1986. The decline in the sepsis related neonatal mortality was due to reduced incidence of sepsis (34.2 and 18.8 per 1000 live births during 1985 and 1986 respectively) and improved survival (case fatality rates of 24.6% and 17.7% in 1985 and 1986 respectively). The strategies which reduced the incidence of nosocomial infections included decongestion of the nursery, discontinuation of use of heparinised saline for flushing intravenous lines and routine use of intravenous cannulas instead of metallic scalp vein needles.

Construction of Growth Reference Standards for Developing Countries

A cross sectional sample of 3000 children (53% Males, 47% females) in the age group of birth to 10 years from urban slums of Delhi were examined for weight and height. Comparison of percentiles of weight and height with NCHS and ICMR standards showed that the 75th percentiles of weight and height of the present study sample were comparable with 80% and 90% of 50th percentile of NCHS and ICMR standards respectively. Hence upper 25% of the sample arranged in ascending order of magnitude was used for the construction of reference standards of weight and height. Comparison of percentiles drawn from the top 25% of the sample demonstrated that 50th percentile of the present study corresponded to 80% of 50th percentile of NCHS for weight and 90% of 50th percentile of NCHS of the height for both boys and girls. Also the 50th percentile of the present study is comparable with 50th percentile of ICMR for weight and height for both the sexes.

Adherent E.coli as a cause of prolonged diarrhea in hospitalised out patients population

We had previously reported association between enteroaggregative E.coli and a prolonged diarrhea in children in a community. As it was the first published report on this association, we performed a prospective study in a hospital setting to confirm the association between aggregative E. coli and persistent diarrhea. A total of 380 children attending out) patients department with non dysenteric acute diarrhea were followed up to determine the natural course of illness without prescribing any antibiotic therapy. The excretion of entero aggregative E. coli was 34% in episodes that lasted 14 days as compared to 9% in episodes of >14 days duration ($p < 0.05$). Thus, this study confirms the etiological importance of enteroaggregative E. coli in prolonged diarrhea in children.

Epidemiological risk factors of persistent diarrhea

We performed nested case control studies in a prospectively followed cohort of 963 children to examine risk factors of persistent diarrhea. The first persistent episodes (cases) were compared to the two sets of age matched contemporary controls, the first being children with acute diarrhea and the second, children without diarrhea. Logistic regression analysis was performed to control for the confounders. Antecedent malnutrition, recent diarrheal morbidity, recent weaning on artificial milk, use of non adapted artificial milks, initial excretion of entero aggregative E. coli and higher initial stool frequency were found to be independently associated with an increased risk of persistent diarrhea. Reduction in malnutrition is likely to significantly reduce incidence of persistent diarrhea in children.

High resolution chromosome banding (HRB) techniques in children with multiple malformations

Analysing the late prophase and early metaphase chromosomes after HRB procedures enables identification of chromosomal aberrations that may go undetected in routine cytogenetic preparations. 48 cases were screened using HRB methods. The results revealed 9 cases with autosomal anomalies and 2 cases with sex chromosomal anomalies. Autosomal anomalies identified included one case with 46,XX,t(14:21) karyotype, one case of 46/xx/46 xx,18,+mar, one case of 46, xx, 2q+, one case of Down syndrome with 47,x isoy (q) +21 and one case of 46, XY,8q+. Sex chromosomal anomalies identified were 45,x/46, xx with low mosaicism of the abnormal cell line in both the cases.

Studies on the origin of the extra chromosome 21 in Down syndrome

This study comprises collection of epidemiologic data, and in vitro experiments on children with Down syndrome and their parents. It aims to identify the

factors which predispose couples to nondisjunction in their meiotic chromosomes. The spindle is examined in peripheral blood cultures stimulated with phytohemagglutinin, as well as blood which has been exposed to measured doses of radiation and hormones. Ten couples and their children have been studied so far.

Epidemiologic correlates, early clinical features and sequelae of perinatal hypoxia

This ICMR funded study is aimed at determining the incidence and major antecedents of birth asphyxia, to evaluate the utility of different parameters of fetal hypoxia and prophylactic utility of phenobarbitone therapy. A total of 60/878 live births had birth asphyxia (severe in 27, moderate in 33). There were more preterm (58%) neonates than term (42%). Twenty neonates were enrolled as controls. Early morbidity included respiratory distress in 22 (36.6%), hypoxic ischemic encephalopathy in 9 (15.0%), seizures/apnea in 9 (15.0%), intraventricular hemorrhage in 11 (8.3%) and hypoglycemia in 12 (20.0%). Thirty five percent cases died in the neonatal period. The mortality rate was 66.6% in the severe and 9.9% in the moderate group. Mortality was remarkably higher in preterm (54.3%) as compared to term (8.0%) asphyxiated newborns. Of the 31 survivors, 16 completed 3 months of age and were called for the first development assessment. The social, motor and mental development indices reveal that 3 (25.0%) of the survivors had delayed social development, while all performed reasonably well on the motor and mental scale.

Clinical presentation of juvenile chronic arthritis (Pediatr and Med)

In a prospective study of 476 children using the diagnostic criteria of the American Rheumatism Association with some modifications such as age at onset <16 years showed besides systemic (21 %), Polyarticular (20%), Pauciarticular (16%) onset types

two other modes of presentations i.e. the seronegative progressive erosive arthritis (11%) and unclassifiable seronegative spondarthropathy enthesiopathy (32%). In seronegative progressive erosive arthritis, the sex distribution was equal and peak age of onset was close to puberty in one third cases. The systemic features were unremarkable. The onset in most cases was pauciarticular but followed a polyarticular course on follow up. The pattern was predominantly symmetrical. The brunt of the disease was borne by the wrist. Unclassifiable group was divided into the arthropathic and enthesiopathic type. In the arthropathic subtype, peripheral arthropathy with or without enthesiopathy occurred at onset, while in the enthesiopathic type, no arthritis was seen initially. The commonest joints involved were of the lower extremity, the pattern of involvement being predominantly asymmetrical.

Characterisation of entero aggregative escherichia coli (Pediat. and Microbiol)

We have previously shown for the first time that entero aggregative E. coli may be new enteric pathogen. Studies were carried out to characterise the isolates from cases of diarrhea in a rural community and determine the mode of action of this organism. The 37 entero aggregative strains tested were found not to belong to any recognized enteropathogenic O serogroup confirming that these organisms are different from traditional EPEC. These strains were all negative for enterotoxin when tested in rabbit ileal loop assays and with specific DNA probes that detect LT and ST. Studies in retard rabbit model showed hemorrhagic necrosis with two strains suggesting a possible role of cytotoxin. However, the results of vero cell assay so far failed to show any cytotoxicity.

Clinical hematological and immunological profile in childhood acute lymphoblastic leukemia (Pediat. and Hematol)

Seventy one patients of childhood ALL seen at A.I.I.M.S. during 1986 to 1988 were investigated. Besides the clinical examinations, hematological and immunological marker studies were done. A large proportion of patients in the series showed one or more factors indicative of poor prognosis, as compared to patients in western series. T-cell ALL accounted for 35% of cases and null ALL 30%. There was a larger proportion of patients with high leucocyte counts, L2 morphology and massive organomegaly. Similary mediastinal mass and CNS disease at diagnosis appeared to be more frequent. This study partially explains the poor cure rates in our patients and may justify use of more intensive chemotherapy.

Clinical, endocrinological and radiological evaluation of male pseudohermaphroditism (MPH) (Pediat, Pediat Surg and Rad Diag)

Twenty five patients with a proved 46 XY karyotype and defective virilisation of external and/or internal genitalia were evaluated. Each patient was subjected to a detailed clinical evaluation, pedigree study, and hormonal evaluation with estimation of basal testosterone, FSH and LH levels and post)HCG testosterone levels. Except one patient with persistent mullerian duct syndrome, all underwent genitography. The study showed two patients with definite evidence of incomplete and rogen insensitivity syndrome (PAIS) including a pair of siblings. 5-alpha-reductase deficiency was presumed in 5 patients including a pair of siblings. Two patients had primary testicular failure and one child had testicular failure secondary to maldescent. One child had persistent mullerian duct syndrome and in 9 patients no final diagnosis could be made. Further special diagnostic tests need to be established for the management of MPH at AIIMS.

Experience concerning female pseudohermaphroditism (FPH) at AIIMS (Pediatr, Pediatr Surg, Rad Diag)

In the last 8 years a total of 63 cases of FPH due to congenital adrenal hyperplasia (CAH) and 4 due to true hermaphroditism were diagnosed. Adrenal adenoma, mixed gonadal dysgenesis, 46 XX male, drug induced FPH, and lymphangioma of clitoris were seen in one each. Even though ambiguity of genitalia was present at birth, only 14 children were brought within the first month of life. Salt wasting symptoms were present in 16 children. Other features of CAH included early virilisation, generalised hirsutism and hyperpigmentation. Clitoromegaly (30), labial fusion (10), scrotalisation of labia (6) and single urogenital sinus (25) were detected in 18 children. Bone age advancement was present in all. Retrograde genitourethrogram was found to be useful for the diagnosis in children with CAH receiving replacement therapy.

Indegenous muscle stimulator

Posterior sagittal anorectoplasty is a relatively new approach for the definitive surgery of anorectal malformations. In this approach the blind rectal pouch is required to be pulled down to the perineum precisely in between the perineal muscles namely levator ani, striated muscle complex and parasagittal fibres in order to provide continence. An indegenous muscle stimulator has been developed in the department which accurately defines these muscle fibres on either side of the midline during surgery. It requires A.C. mains supply of 240 volts and converts it into a direct current between 60 and 120 milli amperes as and when necessary. It has been named after the institute as - "AIIMS muscle stimulator" and is currently being used in various paediatric surgery centres eg. Calcutta, Bombay, Madras, Madurai, Aligarh, Varanasi, Jabalpur and New Delhi. The instrument is to be patented.

Study of craniosynostosis in Northern India: "Clinical, genetic, radiologic, psychosocial and surgical aspects"

The study started from 1.3.88 with an expected duration of 3 years. In the retrospective group (1972-Feb.1988) 87 children have been investigated and 69 operated upon. In the prospective group (March 88-March 89) 24 children have been investigated and 16 operated upon. The clinical presentation was as follows scaphocephaly (3), trigonocephaly (9), brachyturriccephaly, (10) pachycephaly (1) and plagiocephaly (1) 3 children had Crouzon and 2 Alpert syndrome.

Surgery for craniosynostosis : The patients were operated by either linear craniectomy or fronto-orbital advancement by various operative techniques eg. on-lay graft (3), lateral cauthal advancement (11), tongue-in-groove (16) and modified tongue-in-groove devised in the department (3), revealed that sataisfactory cosmetic improvement occurred in over 80% patients, regression of papilloedema in 44.5% (4/9) patients improvement in I.Q. in 42.1% of (19) retarded patients Only 3 out of 10 patients with associated hydrocephalus required C.S.F. shunt. Death occurred in one patient. It was observed that the best cosmetic result with stable advancement occurred with the technique devised in the department.

Study of saccades in parkinsonism (NSC, RPC)

An indepth study of various groups of saccades were conducted on 20 patients of Parkinsonism and they were compared with saccades elicited from a matching group of controls. The various groups of sccades studied were of the voluntary and reflex categories, which had horizontal (leftward and rightward) and vertical (upward and downward) subgroups. Comparisons between the different groups revealed that multiple step saccade was a hallmark in the patients. Only those parts of the saccades were involved when the eye was in motion, with the latest period being significantly increased. The most significant observation contrary

to early reports was that the angular velocity during the saccade was not affected though the saccade was lengthened and it was because of intervening latent periods preceeding every corrective saccade. The saccadic involvement was proportional to the grade of the disease and EOG may have a diagnostic lateralising value during evaluation of a patient of parkinsonism.

Indo-US (DST-ICMR) collaborative research project "case control study of senile cataract"

To evaluate the role of suggested nutritional deficiencies and oxidative damage as risk factors in age related cataract, 16 biochemical investigations per blood sample have been done. Total of 1135 masked sample of specified cataract patients and controls who fulfilled the eligibility criteria of selection were included in the study. To keep laboratory quality control, intermittent standard samples and replicate masked blood samples drawn the same day were also included through out the study. Interworker and intraworker variability were established. Following tests were done in each sample : Haemoglobin, plasma levels of proteins (total and differential) vitamins - C and E, glucose and BUN, nutritional dependent RBC enzymes i.e. G.R. glutathione reductase (Riboflavin dependent) TK-Transketolase (thiamine dependent), ASP-Aspartate aminotransferase (Pyridoxine dependent) and GPX- Glutathione peroxidase (Selenium dependent). The first three enzymes were done with and without saturating amount of the vitamin added in vitro. In addition erythrocyte levels of G6PD (glucose-6 phosphate dehydrogenase) and 6PGD (6-phosphoglucose dehydrogenase) were measured. The data analysis using polychotomus logistic regression (PLR) model revealed that risk of pure, posterior subcapsular (P) and combined group of P and N (Nuclear) cataract decreased as an antioxidant index-3 (AO3: based on levels of GPX, G6PD Vitamin-C and E, synergistic effect) increased from lowest to highest levels. Risk of PN also decreased as haemoglobin increased by one standard deviation. However risk on PN increased as vitamin-C increased by one standard deviation. Risk of PC (C-cortical cataract) increased as copper increased by one

standard deviation. No association between cataract and status of riboflavin, thiamine and pyridoxine could be found, in this larger study of specific cataract type. The study suggests that age related cataract development is a complex multi-factorial process.

Economy and efficiency in surgery

This study aims to test the feasibility and advantages of short stay in major surgery. Following routine major surgery patients are discharged early (within 1-4 days) and followed up in the out-patients department. The introduction of a new concept is envisaged: that even after major surgery, stay in the hospital is not necessary - it is safe for the patient to go home and recover at home. As the study nears completion, 450 patients have been studied; there has been a re-admission rate of about 1%, with no complications in any patient resulting from early discharge. 97% patients have expressed satisfaction with this system. Apart from cancer patients who have to come repeatedly for chemotherapy, one or two hospital visits has sufficed for most patients. This system not only saves the hospital expenditure on each patient, it also facilitates increased turnover in the limited number of beds.

DISTINCTIONS, AWARDS & HONOURS

Prof.M.M.S.Ahuja was awarded Jawahar Lal Nehru Fellowship in May 1988 for two years.

Prof. J.S. Bajaj delivered the Lilly Lecture, at Sydney in November, 1988; awarded the Fellowship of the Association of Physicians of India and the Indian College of Physicians.

Prof. S. Bhargava delivered Major General Mazumdar Oration at AIIMS., New Delhi and Dr. P.K. Halдар Oration at Calcutta. She was nominated Fellow of National Academy of Sciences, Allahabad.

Dr.V.Bhatnagar was conferred the membership of the National Academy of Medical Sciences (India).

Prof. L.K. Bhutani delivered Dr. Nusrat Sheikh Memorial Lecture at the Fifth International Dermatology Conference in Multan, Pakistan.

Prof. V. Bijlani was conferred Membership of the Society for Value of Science.

Dr. Sudhir Chandna was awarded U.C. Chakravorty award for the best paper of the year 1988 at the Silver Jubilee Conference of Association of Surgeons of India, December, 1988.

Dr. P.Chopra was awarded Amrut Mody Unichem Prize for 1988 for work on Cardiovascular pathology.

Dr. K. Dalal has been awarded membership of Madras Institute of Magnetobiology.

Dr. S.C. Dash was nominated a member of the Indian society of Membrane Sciences & Artificial Organs and that of the Asian Pacific Society of Nephrology.

Dr V.Dev was awarded the Dr D.P.Basu young investigator award in the annual conference of CSI & ATCVSI, November 1988.

Dr. Rajiv Dhir, JR was awarded Saty Monga Award 1988 for best paper in immunocytochemistry by the Indian Academy of Cytologists.

Dr. P.Ghosh received the Hemant Bala Bhagaji award (1989). and a Silver medal by the Bihar branch of the Association of Otolaryngologist of India, 1988.

Dr.R.K.Goulatia delivered the Sir Jagdish Chandra Bose Memorial Oration of Indian Radiological and Imaging Association for the year 1989.

Dr. Pankaj Gupta, Senior Resident, Medical Oncology, received the Best Paper Award in the 5th Binennial Conference of Indian Association of Cancer Chemotherapists in February, 1989 at Bombay for his paper entitled "Multiple myeloma - experience at IRCH, AIIMS.

Dr. U. Kaul was conferred membership of the National Academy of Medical Sciences.

Dr. S.K. Khandelwal was conferred membership diploma by the World Psychiatric Association for Human Relations Training , New York.

Dr. K.Khetarpal was conferred the fellowship of the National Environmental Science Academy.

Prof. P.K. Khosla awarded P. Siva Reddy oration gold medal by Andhra Ophthalmological Society.

Dr. Atul Kumar received the runners up Prize "Ophthalmic Quiz" conducted by 47th AIOS, Jan., 1989, Madras.

Dr. Lalit Kumar,, Pool Officer, Medical Oncology, has been awarded the KGMC fellowship for 1989 by Indian Association of Cancer Chemotherapists in the conference held in February, 1989 at Bombay.

Prof. Madan Mohan received M.P. Mehere cash award and citation for distinguished service in the prevention of blindness from U.P. Govt. for the year 1987-88; delivered Dr. A. Siva Sallam Memorial Oration at Coimbatore on 21.8.88.

Dr.A.K.Mahapatra has been conferred membership of National Academy of Medical Sciences of India.

Prof. A.N. Malaviya delivered Madan Mohan Malaviya Oration at BHU March, 1989; has been conferred Fellowship of the National Academy of Sciences and the Fellowship of the Association of Physicians of India.

Prof. S.C. Manchanda delivered the Sphere Oration of the CSI in Nov. 1988.

Dr. K.D. Moudgil was awarded Dr. C. Sita Devi award of the Association of Clinical Biochemists of India (ACBI) for 1988.

Dr. A.K. Mukhopadhyay was conferred membership of National Academy of Medical Sciences.

Prof. I. Nath delivered the Clayton Memorial Lecture at the London School for Tropical Medicine and Hygiene in UK.

Miss R.S. Padma, Ph.D. student, was recipient of Young Scientist Award of Indian Science Congress at the annual meeting at Madurai in January, 1989.

Dr. Kallol K Roy was awarded first prize for the best paper at the time of XI annual conference of Obstetricians and Gynaecologists held in October, 1988.

Prof. Subimal Roy was conferred membership of the National Academy of Sciences.

Dr. U. Sabherwal was nominated Member of the National Academy of Medical Sciences.

Miss Renu Sethi, Ph.D. student, was awarded Dr. K.S. Krishnan Award from Bhabha Atomic Research Centre, Department of Atomic Energy, Bombay.

Dr. S.K. Sharma received Saroj Jyoti award consecutively for the second time for best paper in 8th National Congress on Respiratory Diseases at Goa in Jan. 1989.

Prof. L.K. Sharma delivered Dr. Atm Prakash oration at the Vth annual conference of the National Medicos Organisation held at Bhagalpur, Bihar.

Mr. A.K. Shetty was awarded Tulsabai Somani Educational Trust Best Poster Award on "Long Term Behaviour of Adrenal Medulla Transplants in Oculo" at the 8th Annual Conference of Indian Academy of Neurosciences held at Chandigarh in March 1989.

Prof. S.S. Sidhu delivered M N Sen Oration at the 43rd Indian Dental Conference at Pune, Dec. 1988.

Dr. Mahipal Singh Sachdev awarded A.C. Aggarwal Trophy for Best Paper presented in Delhi Ophthalmological Society Annual Conference, 1988. Certificate of Merit-Col Rangachari Session-Madras, Jan., 1989.

Prof. Meharban Singh was conferred the Fellowships of National Academy of Medical Sciences and Indian Academy of Pediatrics.

Prof. T. P. Singh has been appointed the member-secretary of the Indian National Science Academy.

Dr. A.K. Susheela was awarded the Fellowship of National Academy of Medical Sciences in January, 1989.

Dr. K. K. Talwar received the Dr Syam Lal Saxena memorial award of the NAMS for 1988 & was appointed editorial consultant to "Cardiovascular World Report" & Indian Heart J.

Prof. B.N.Tandon delivered the Dutta Oration at P.G.I. Chandigarh and was awarded the Fellowship of Indian National Science Congress.

Prof. P.N. Tandon was awarded the Padma Bhushan by the President of India.

Prof. R. Tandon delivered the Gen. R.S.Hoon oration of the National Association of the Critical Care Medicine (India) 1988.

Dr. R.K.Tandon delivered the Bankat Chandra Memorial Trust Oration Hyderabad.

Dr. H.K.Tewari awarded P. Siva Reddy gold medal oration for best national or international clinical research by AIOS at Madras for the year 1989-90; awarded Indira Bhai Khare oration on "Lasers in Ophthalmology by IMA Nagpur.

Dr. Sushma Vashisht was conferred the membership of the National Academy of Medical Sciences.

Dr. Abhay Vats was awarded Sarla Vaishnav Award for best research paper by the Indian Academy of Pediatrics, Delhi Branch.

Dr. S. Wadhwa was awarded Shakuntala Amirchand Prize for the year 1988 for research work in developmental neurobiology nominated to be the Member of the Indian Academy of Neurosciences.

Prof. H.S.Wasir delivered the Dr O.P.Goel Oration of the Meerut branch of IMA for 1988.

Chapter 2

ACADEMIC ACTIVITIES, COURSES OF STUDY AND THE FACULTY

The following degrees have been awarded during the year, 1989:

1. Ph.D.	13
2. M.Ch.	12
3. D.M.	10
4. M.D.	67
5. M.S.	15
6. M.H.A.	5
7. M.Sc.	4
8. M.B.B.S.	43
9. M. Biotechnology	5
10. B.Sc. (Hons) Human Biology	4
11. B.Sc. (Nursing) Post certificate	8
12. B.Sc. (Hons) Ophthalmic Techniques	9
13. B.Sc. (Hons) Nursing	44

2.2 The Institute Day

On September 25, our Institute completed 32 years of its eventful and proud existence. Various departments collaborated to put up an exhibition which was kept on for two days. The theme was "Prevention of

Disease". The exhibition was open to the public. Schools all over Delhi were given the information about the exhibition. Children from a number of schools visited the exhibition by turns. A whole day scientific programme on newer advances in "Cancer" was organised. Faculty members presented various aspects of their research activities.

2.3 Workshops, seminars, symposia and training courses

During the year under review, various departments of the Institute organised and conducted more than 19 workshops, seminars and training courses which have been listed under the respective departments. Besides, the participation of the faculty members, research workers and students of the Institute, these academic exercises were attended by a large number of medical teachers and professionals from various parts of the country and abroad.

2.4 The faculty

Faculty	Sanctioned strenght	In position	Joined during the year	Left/ retired during the year
Professors	82	72	12	3
Additional Professors	53	72	17	1
Associate Professors	118	75	8	-
Assistant Professors	127	109	37	2

2.5 Education

There was no change in the pattern of education at the undergraduate level. The duration of the MBBS course continues to be 5 & 1/2 years including one year

of compulsory internship training. The period of five and a half years is subdivided into 4 major phases:

- i) One year of pre-clinical training
- ii) One and half years of para-clinical training
- iii) 2 years of clinical training and
- iv) 1 year of rotating internship

2.5.1 Undergraduate Course

Admission to MBBS course

50 students were admitted to the MBBS course in August, 1988. Out of these 45 students were selected on the basis of an all India written competitive test held at 5 centres viz Bombay, Calcutta, Delhi, Hyderabad and Madras. The selection of students was entirely on the basis of their performance in the competitive examination, which consisted of multiple choice questions. Five foreign nationals were nominated by the Government of India against reserved seats. They were 2 from Sri-Lanka, and one each from Nepal, South Africa and Yemen. Of the selected candidates, 7 belonged to scheduled caste and 4 scheduled tribe. The total number of undergraduate students including 49 interns on the rolls on 31st March, 1989 was 260.

A batch of 25 students was admitted for B.Sc. (Hons) course in Human Biology in August, 1988 against the normal quota of 25. These students were also admitted on the basis of their performance at the all India written competitive entrance examination.

Financial support to undergraduate students

Three full freeships were awarded to the financially underprivileged undergraduate students of various semesters during the year. The merit scholarships, each of the value of Rs. 200/- per month and Rs. 150/- per month were awarded to the students, who secured first and second position in the first, second and final MBBS examination of the Institute.

Undergraduate examinations

The examinations were held for first MBBS course: one in July, 1988 and the other in August, 1988. Two examinations were held for 2nd MBBS, one in May, 1988 and the other in December, 1988. The final MBBS examinations were held in December, 1988 and January, 1989.

Postgraduate & Doctoral Courses

199 students were admitted to various postgraduate courses of the Institute during the year under review, bringing the total number of postgraduate students on the rolls of the Institute, as on 31st March, 1989 to 513.

The distribution of the postgraduate students, discipline wise, is given below:

DM

Cardiology	13
Neurology	5
Gastroenterology	8
Endocrinology	5

M.Ch.

Neuro Surgery	10
Cardioth & Vasc. Surgery	9
Urology	6
Paediatric Surgery	6

Ph.D.	
Anatomy	11
Biochemistry	11
Biophysics	6
Biostatistics	1
Physiology	4
Microbiology	6
Pathology	4
Pharmacology	6
Reproductive Biology	4
Psychiatry	1
Obst. & Gynae.	1
Biotechnology	1
Medicine	3
Paediatric Surgery	1
Nuclear Medicine	1
Surgery	3
Dental Surgery	Nil
Paediatrics	6
Medical Oncology	2
E.N.T.	1
Cardiology	2

Endocrinology	4
M.D.	
Anaesthesiology	25
Biochemistry	7
Biophysics	2
Dermatology & Venereology	7
Forensic Medicine	3
Medicine	42
Microbiology	8
Obst. & Gynae	22
Ophthalmology	73
Paediatrics	23
Psychiatry	10
Community Medicine	13
Pathology	9
Physiology	7
Pharmacology	8
Radiodiagnosis	13
Radiotherapy	5
M.D.S.	6
M.S.	
Anatomy	2

Otorhinolaryngology	11
Orthopaedics	16
Surgery	35
M.Ch. (5 years) course	
Neurosurgery	2
Paediatric Surgery	3
M.Sc.	
Drug Assay	Nil
Biochemistry	1
Anatomy	Nil
Biophysics	2
M. Biotechnology	10
Master of Hospital Adm.	7

Faculty development programme

The following two workshops were organised under this scheme:

Curriculum planning - October 17-22, 1988

Evaluation techniques - December 23-24, 1988

22 faculty members from departments involved with undergraduate teaching in a significant manner participated in this workshop. Consultants from Association of Indian Universities and NCERT assisted the teaching faculty. Prof. M.M.S. Ahuja, Dean was the Programme Coordinator.

Prof. A. Stewart and Prof. Ray Mcleese from Dundee addressed faculty on Educational Technology, during their weeklong visit (January 11-16, 1989).

Research schemes funded by Institute:

71 research projects submitted by faculty members were evaluated. 32 were provided financial support for the year 1989-90 (New project - 17, continuation projects - 15).

Educational/Teaching Aids:

Academic section has acquired further teaching aids and video screening is now available for student teaching.

Financial assistance

The Junior Residents were paid Rs. 2400/- month in first year, Rs. 2475/- month in second year and Rs. 2550/- month in third year plus CCA as admissible under Central Government rules. This was inclusive of all allowances including N.P.A. The Senior Residents were paid in the pay scale of Rs. 3000/-, Rs. 3100/- and Rs. 3200/- plus allowances as are admissible to all other employees of the Institute. The Ph.D. students were paid at the rate of Rs. 400-50 500 per month plus DA and CCA as admissible under the rules.

The pay scales of Junior Residents/Senior Residents were revised w.e.f. 1st January, 1986 and are now as under:-

- | | |
|--------------------|---------------------|
| 1) Junior Resident | 2400-2475-2550 |
| allowances & | inclusive of all |
| | N.P.A. |
| 2) Senior Resident | 3000-3100-3200 |
| and P.G.A. | inclusive of N.P.A. |

The question of enhancement of emoluments to Ph.D. students is under consideration of the Government of India but pending final decision of the Government, an adhoc increase of Rs. 250/- month has been sanctioned to Ph.D. students w.e.f. 1st january, 1986 as approved by the Standing Finance Committee of the Institute.

Postgraduate examinations

The results of the various post graduate examinations held during 1988-89 are as follows:-

S.No.	Name of the examination	No. appeared	No. of students successful
1.	M.D. (Anaesthesiology)	4	4
2.	M.D. (Derma. & Venareology)	3	3
3.	M.D. (Medicine)	15	12
4.	M.D. (Ophthalmology)	16	16
5.	M.D. (P & SM)	7	4
6.	M.D. (Obst. & Gynaecology)	6	5
7.	M.D. (Psychiatry)	2	2
8.	M.D. (Radio-diagnosis)	5	5
9.	M.D. (Radiotherapy)	1	1
10.	M.D. (Paediatrics)	5	4
11.	M.D. (Pathology)	3	2
12.	M.D. (Microbiology)	3	3
13.	M.S. (Surgery)	11	9
14.	M.S. (Otorhinolaryngology)	2	2
15.	M.S. (Orthopaedics)	6	4

16. D.M. (Gastroenterology)	2	2
17. D.M. (Cardiology)	8	4
18. D.M. (Neurology)	1	1
19. D.M. (Endocrinology)	4	3
20. M.Ch. (C.T.V.S.)	5	5
21. M.Ch. (Paediatric Surgery)	4	4
22. M.Ch. (Urology)	3	3
23. Ph. D.	14	14
24. M.D. (Forensic Medicine)	2	2
25. M.D. (Biochemistry)	3	3
26. M.D. (Biophysics)	1	1
27. M.D. (Physiology)	1	1
28. M.D. (Pharmacology)	1	-
29. M.H.A.	5	5
30. M.Sc. (Biochemistry)	3	3
31. M.Sc. (Biophysics)	-	-
32. M.Sc. (Anatomy)	1	1
33. M.Bio-technology	5	5

All-India Postgraduate entrance examination

In compliance with the directive given by the Supreme Court of India, on 25th September 1987, AIIMS organised and conducted the second entrance examination for admission to various postgraduate medical and dental courses (MD/MS/Diplomas/MDS) on all India basis,

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for 25 per cent of the total seats in recognised medical and dental colleges.

The examination was held at 15 capital cities in the country on the 19th February, 1989. A total of 18392 applications were received. Out of this, 17891 applications were for admission to MD/MS/Diploma courses and 501 for admission to MDS course. 14853 candidates appeared in the MD/MS/Diplomas courses and 442 candidates appeared for admission to MDS course. The result was declared on 14th April, 1989 and handed over to the DGHS, New Delhi for allotment of seats/colleges to the candidates who qualified in the entrance examination.

2.4.3. Nursing education

Nursing education is receiving due and increasing attention at the Institute.

B.Sc. Nursing (Post-certificate)

B.Sc. Nursing (Post-certificate) course is being run by the Institute since July, 1968. Eight students qualified for the award of this degree. At present there are 23 students on rolls as on 31st March, 1989.

B.Sc. (Hons) Nursing

The tenth batch of forty nine students was admitted to this course thus making a total of 183 students on the rolls as on 31st March, 1989.

2.4.4. Para professional courses

B.Sc. (Hons) in Ophthalmic techniques

The thirteenth batch of 11 students was admitted to the course, thus making a total of 28 students on rolls as on 31st March, 1989.

B.Sc. (Hons) Medical Technology in Radiography

The course was converted from Diploma in clinical technology (Radiography) into B.Sc. (Hons) Degree course in Medical Technology in Radiography from August, 1986 session. 3rd batch of 8 students was admitted to this degree course thus making a total of 19 candidates on rolls as on 31st March, 1989.

B.Sc. (Hons) Speech & Hearing

3rd batch of 4 students was admitted to this course in August, 1988 session thus making a total number of 11 students on rolls as on 31st March, 1989.

Chapter 3

GENERAL ACTIVITIES

3.1 Administration

Staff Position

Faculty	Sanctioned Strength	In position	Joined during the year	Left/Retired during the year
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Group 'A'	52	45	13	3
Group 'B'	153	121	16	12
Group 'C'	1043	1020	67	23
Group 'D'	732	701	65	4

Standing Committee Meetings

During the year the Institute Body had one meeting; the Governing Body had three meetings; the Finance Committee had two meetings; the Academic Committee had six meetings; the Standing Selection Committee had two meetings and the Hospital Affairs had no meeting.

3.2. Publications-cum-Public Relations Unit

Annual report

Editing and publication of the Annual Report (1987-1988) were completed in time and the report alongwith its Hindi version was submitted to the Parliament. The Hindi translation of the report was prepared by the Hindi Section of the Institute.

The material for the annual report of the Ministry of Health and Family Welfare for the year 1988-89 was also compiled and sent to the Ministry in time.

Public lectures

As in the previous years, the AIIMS public lecture series was organised by the P & P.R. Unit. The response both from the public and the press was highly encouraging.

The following lectures were organised during the year:

1-12-1988 AIDS - Prof. A.N. Malaviya

9-03-1989 CONTACT LENS - Prof. V.K. Dada

Important visitors

A number of foreign dignatories and official delegations visited the institute during the year under review. They included delegations from Britain, Mangolia, Poland, Yugoslavia and USSR.

Media relations

The P & P.R. Unit maintained an effective media relation. Various activities of the institute, including important seminars and workshops, organised by various departments and centres, were given due publicity both on print and electronic media. Innovations in patient care services were also highlighted.

AIIMS news

The AIIMS News is being published regularly from January 1989. Efforts are being made to gather news every month and to keep the regularity of the publication intact.

Public relations in hospital

The public relations officer attended to a large number of public grievances on the spot in the Rajkumari Amrit Kaur OPD where he was available every morning for 3 hours. The PRO also looked after various public relations aspects of the hospital in relation to the problems of the visiting patients.

Other activities

The P & P.R.O. was intimately involved in the celebration of the Institute Day on 25th September 1988, when an exhibition was put up on the theme "Prevention is better than cure". The unit was also actively associated with the celebration of World Aids Day on 1st December 1988.

3.3 B.B. Dikshit Library

Additions

During the year 885 new books were added in the library, making a total collection of 53948 books. With the addition of 1632 journals and 137 reports/pamphlets, the number of bound volumes of journals and reports/pamphlets increased respectively to 42481 and 12040.

The library receives 459 journals and 80 newsletters in the field of health sciences and related specialities.

Timing

The library remains open from 8.00 A.M to 2.00 A.M everyday throughout the year including sunday and holidays. The library is being extensively used by the staff and students of the Institute. The library has 2150 regular members. On an average about 500 readers consult the library per day.

Services

The library provides book alert service: a monthly service listing the newbooks, monographs and pamphlets; periodical alert service: a fortnightly service listing the new periodicals; article alert service : a monthly service listing important articles in each subject; current list on medical literature: A monthly service listing articles on general aspects of medical education; current literature on oncology : a monthly service; bibliographies on demand ; inter library loan service; reprographic services and book bank.

New Ventures

Medline Search

The library forwarded more than 100 requests of the readers for MEDLINE SEARCH to National Informatics Centre.

Microforms Section

The library acquired two microfilm/ microfiche readers during the year. 300 microfiches and 16 microfilms have been purchased.

Library Automation

The library has purchased one PC/ AT with four terminals for automating the library routines. CDS/ISIS, a library software package is used to provide current literature on medical education.

Book Exhibition

The Government of the Federal Republic of Germany gave a generous gift of 60 books and journals for the library. Which were exhibited in the library from 8th to 10th August 1988.

Significant Events

Dr. R.P. Kumar is on the editorial board of Indian Library Movement and was co-opted by the Indian Library Association as a member of the Council with a specific responsibility to hold the office of chairman of the central sectional committee for health science libraries; presented a paper "Evolution of different information systems in India and a suggestive plan for an integrated system" in the 44th FID Congress held at Helsinki, Finland in August 1988. For the Nursing Research Society of India he gave a guest lecture on "Information sources and services for nursing research held at New Delhi in September 1988; and was invited by the Academy of Hospital Administration for lectures to the participants of a short training programme at Nagpur on Electronic data processing and Information systems in November 1988.

Publications

1. Kumar, R.P. Frontiers in modern information technologies and public libraries in India. International Library Movement 1988;11:157 - 164.

Paper accepted for publication 4
Paper presented at the conferences 1

3.4 Engineering Services Department

Construction of 96 nos. 'B' type quarters Phase-II at AIIMS

96, 'B' type quarters in Phase-II have been completed within the time frame and occupied.

Construction of building for Bio-technology

The construction of building for Bio-technology has already been taken in hand and is in progress. At present basement, ground and 1st floor are under construction.

20 more Asiad flats

In addition to 30 Asiad flats, 20 more Asiad flats have been taken over from DDA and necessary renovations/improvements were done. The flats have already been occupied by the faculty.

Renovation of kitchens in the ward block

The kitchen of ward block has been modified and the work has been completed.

A/A in animal house

The renovation of some important rooms which were taken in hand has been completed.

Construction of resident doctors hostel and nurses hostel

The construction work of resident doctors hostel and nurses hostel is in progress and is being monitored to ensure early completion.

B, C & D wings of Dr. R.P. Centre

N.O.C. from fire authorities has been obtained and the building has been occupied.

Renovation of toilets attached to Sr. and Jr. doctors rooms in ward

The toilets of senior and junior doctor's room in ward block 'D' wing have been renovated. Renovation of toilets in 'C' wing is being done.

Construction of 10 garages near 'E' type quarters

10 garages in the eastern campus have been constructed and are in use.

Site preparation for lithotripter

The work of preparation of site for lithotripter including air-conditioning has been completed. The lithotripter has already been installed.

Preparation of site for computer facilities

The work of preparation of site for main frame computer such as aluminium partitions, novapan boards, almirahs, false ceiling, false flooring, PVC flooring, electrical installations, air-conditioning plants and ducts and generator room alongwith generator have been completed.

Construction of rooms in the corridor attached to old neurology department

About 6 rooms alongwith corridor have been constructed in the cross wing corridor at ground floor P.C. block and are being used.

A/A for medical education centre 1st floor museum block

The work has been completed except for providing false ceiling in Studio because lights and their fixing arrangement is to be imported, therefore, the false ceiling work can only be taken up after the lights are installed.

Construction of mess at Ayurvigyan nagar

On persistent demand for a mess in Ayurvigyan Nagar, the building for running the mess has been completed.

Parking arrangements near institutional buildings and hospital

The parking of vehicles of staff and public visiting A.I.I.M.S. has been regulated and new parking areas have been created near Rehabilitation Centre, animal house, Dr. R.P. Centre and opposite State Bank for AIIMS faculty and staff and for others visiting AIIMS. Traffic flow has been regulated and the quadrangle between Administrative Block, P.C. teaching block has been made a traffic free area.

Construction of recreation room

One floor has been added to the Gymkhana building to provide additional recreation facilities.

Faculty room

A faculty room has been developed in front of the canteen on the ground floor of teaching block.

Horticulture

The horticulture wing of Engineering Services Department continues to keep the Institute complex green & picturesque with lush green lawns, rose beds and flower beds. About 500 trees, 1100 shrubs and 5000 hedge plants have been planted in the year 1988-89 and 350 rose plants have been replaced.

The horticulture wing has been competing and has won a large number of cups, shields and trophies. The Institute has bagged 17 cups and two trophies.

In addition to the above horticulture wing has won 31-1st prizes, 42-2nd prizes and 19-3rd prizes during 1988-89.

3.5 Medical Illustration Unit

The Medical Illustration Unit (M.I.U.) continues to render services in the preparation of visual aids for teaching, research and presentation of scientific reprography in publication and at medical conferences.

The M.I.U. prepared charts, diagram etc., for "Health for all" exhibition held at the Institute. In the year under review the M.I.U. prepared the following materials.

1.	Projection slides	34,000
2.	Photograph	22,000
3.	Art work	1,925
4.	I.B.M. typing for visual aids	9,800

3.6 Central Workshop

The Central Workshop has been engaged in the repair and maintenance of equipment/instruments used for medical education, scientific research and hospital service. In spite of increased load of above mentioned activities, it has continued to cater for different needs of the Institute/Hospital. Prof. T.P. Singh, head of the department of Biophysics is the faculty co-ordinator.

Shri Satya Pal has been appointed as Chief Technical Officer (ad-hoc) w.e.f. 8.10.1988.

The central workshop has following sections

1. Electronic section

2. Mechanical section
3. Electrical and refrigeration section
4. Glass blowing section
5. Carpentry section
6. Painting section

Fabrication and guidance

The central workshop continues to provide help in the research activities for modification and fabrication of apparatus and maintenance of hospital and laboratory equipment/instruments. The total number of items repaired or fabricated was 6595.

Repair & maintenance

The central workshop has taken preventive maintenance of all type of microscopes, patient trolleys, balances and the equipment/instruments installed in the central sterilising department (CSSD) of the hospital. A total number of 6,218 repair jobs covering all types of equipment/instruments of the Institute and hospital were done.

3.7 Experimental animal facility

The functions of Experimental Animal Facility (EAF) included maintenance, breeding and supply of laboratory animals to the various departments of the Institute for research purposes. The facilities are extended to investigators for experimental surgery and after care of the post operative animals.

During the year 1988-89 on an average a total of 9578 animals were maintained in EAF.

Small animal facility

It includes rabbits, rats, mice, guinea pigs, hamsters and frogs. 6620 animals were supplied to various departments as well as 1676 (for Rs.16785/-) to other institutions for medical research in and outside

Delhi. Due to the non-functioning of the airconditioning breeding could not take place during the summer season. 2231 animals were procured from contractors under rate contract.

Large animal facility

This consists of cats, dogs, monkey, donkey, sheep and goats. 179 dogs and 68 cats, were procured from local suppliers and were distributed to various departments. On an average 40 sheep and goats were available for collection of blood samples and other research work.

Experimental surgery

240 surgical procedures and radiological investigations (exploratory laparotomies, laparoscopies, micro-vascular surgery, biopsies and investigative X-Ray) were conducted.

HOSPITAL SERVICES

Immature rats are being bred and supplied for pregnancy test to the Deptt. of Pharmacology for hospital services. Rabbits are supplied to the Pharmacology Department for pyrogen testing of fluids.

EDUCATION PROGRAMME

Dr. D.N. Sharma, Senior Technical Officer (Veterinarian) gave lectures to the students of B.Sc. (Human Biology) courses on breeding maintenance and experimentation on laboratory animals. Practical demonstrations were given by him and technical staff.

Students of B.Sc. (Nursing) were given orientation of the Experimental Animal Facility.

Dr. D.N. Sharma, Senior Technical Officer attended the Symposium on "Animal Model in Reproduction and Fertility Regulation" held at C.D.R.I. Lucknow (U.P.) in November, 1988.

Primate research facility

The primate research facility (PRF) caters to the need of various investigators. 12 investigators used

the PRF for research in the fields of contraception, liver & neural transplant, hepatitis and toxicology. 241 monkeys (135 male, 106 female) were made available to the investigators.

A total number of 130 monkeys were procured by the PRF as follows: 1) Procured from dealer - 112 2) Colony born - 10 3) Caught - 2 4) Received from Deptt. and kept in the Isolation Unit. - 6.

Breeding programme of monkeys under captivity continued. 5 monkeys were mated, out of which 3 monkeys conceived. The expertise on breeding techniques acquired were extended to the Neural Transplant and Engraftment Potential of mismatched foetal liver cells under Dr. P.N. Tandon and Dr. V. Kochupillai respectively. 6 foetuses of 55-65 days of gestation were given to neural transplant project and 2 foetuses were given to engraftment potential of mismatched liver cells project.

Because of strict vigilance and rigorous monitoring of health of monkeys, the mortality rate has gone down considerably. Out of 220 monkeys maintained in the PRF, only 17 monkeys died. 210 were reported sick of whom 57 were given prophylactic treatment and all of them recovered. 68 monkeys were treated for trauma and other minor ailments. 32 had infections (chest congestion, diarrhoea, anorexia of which 7 monkeys did not respond to treatment while 25 monkeys recovered. 53 monkeys required more than one course of treatment for recovery. 109 monkeys were subjected to surgical procedures and were given post-operative treatment.

All the monkeys in the colony were subjected to T.B. test in April, May and June, 1988 to weed out tuberculosis from the colony. 23 monkeys came out positive and were sacrificed. 35 monkeys were sacrificed by the investigators for their terminal studies and 11 monkeys were taken away from the PRF by the investigators to their department for further studies.

The PRF staff rendered services to various investigators. The details of various procedures are as under: Blood samples (1304), Intra muscular injections

(786), Electro-ejaculation (128), Mating (113), Rectal palpation (112), X-ray (112), Haematology (185), Chemistry (185), Parasitology (379), Surgery (109).

Constitution of ethics committee for use of non human primates in biomedical research

An ethics committee on use of primates in biomedical research was constituted for the first time at AIIMS in December, 1987. This Committee provides guidelines to the investigators on human use of primates, screens project proposals, regulates and monitors the ethical use of primates. The composition of the committee is as follows:

Prof. S.K. Manchanda
Chairman

Prof. N.C. Nayak Member

Prof. P.G. Gopinath Member

Dr. K.R. Bhardwaj Member
C.D.R.I., Lucknow

Dr. D.N. Sharma Member

Dr. M. Rajalakshmi Member
Secretary

The Committee has evolved detailed guidelines on ethical use of primates at AIIMS. The committee has screened 12 projects so far, suggested modification in 2 and approved the remaining projects.

PRF has acquired a number of new equipments for updating its work.

Medical education programme

During November 1988, PRF organised a workshop on "Primate management and experimentation". 21 young scientists of various disciplines from all over India attended the workshop. The participants were given theoretical and practical update on different aspects of primate biology, surgical techniques in use and primate management.

Chapter 4

HOSPITAL

Administrative Staff:

Medical Superintendent	A.N. Safaya
Addl. Medical Superintendent	S.K. Verma
Associate Professor	R.K. Sarma
Assistant Professors	P.C. Chaubey
	A.K. Gupta

1. General information

Total No. of beds	(Dieted) 816
	(Non-Dieted) 108
General Ward beds	751
Private Ward Rooms	65

Hospital performance indices:*

- (i) Average length of stay : 9.0 days (Indicates effective utilisation of the beds)
- (ii) Average % of bed occupancy rate : 94.8 (Indicates a high degree of congestion rate)
- (iii) Net death rate : 3.2 (Indicates low mortality rate despite the fact that quite a large number of critically ill patients are admitted to the Hospital)

(iv) Infection rate : 2.471 (It is fairly low and compares favourably with the international standards).

*Please see Appendix V & VI for details.

Out patient department and speciality clinics

A total of 1105125 patients attended the general out patient department and speciality clinics. The details of the patient load profile are given in Appendix-I.

Emergency and Accident Services

The emergency services are under overall charge of Dr. L.K. Sharma, Professor of Surgery. Dr. J.K. Maheshwari, Dr.A.K. Kriplani and Dr. Anoop Mishra are Assistant Professors for the emergency services.

The emergency service of the hospital provides round the clock care for expeditious treatment of all types of emergency. 91480 patients reported to emergency services. 6638 minor and major emergency operations were performed in the operation theatre attached to the emergency services.

Inpatient Services

The hospital has maintained its tradition of service and quality of patient-care inspite of the ever increasing number of patients that come to this hospital from all over the country as well as from abroad. The pattern of distribution of the hospitalised patients is given in Appendix-IV.

A total of 43966 patients were admitted during the year in various clinical units of the hospital. The analysis of the admitted patients speciality wise is given in Appendix-II. The number of surgical procedures performed during the year in different surgical disciplines is given in Appendix-III.

Medical Records

The medical records of patients admitted to the hospital are initiated from the central admission office which also functions as enquiry and reception counter. The office works round the clock. All types of enquiries regarding patients, departments, doctors and centres are provided from this office.

The record of inpatient is kept at the various places of the hospital including the basement. All efforts are made to take out the case-sheet of old cases on demand by the clinicians. The records are systematically classified and categorised for efficient retrieval of records. The computerisation of records of inpatients is in progress.

Employees Health Scheme

The department runs morning and evening O.P.D. daily and functions for two hours on Sundays and holidays for emergency. The total number of patients seen in the year was 113800 of which 59451 were new cases and 54349 were old cases. On an average 380-400 attended the E.H.S. O.P.D. daily. Ambulance services are being provided to all the employees and their dependant family members whenever needed. A separate ambulance has been reserved for this purpose.

Hospital poor patients fund

During the year 1988-89, the total receipts from the donor's towards poor fund account was Rs.44344/-. Total payment made was Rs.27670/- to 398 poor patients.

Department of Dietetics

The hospital dietetics service serves food to the patients admitted in the hospital. The diets served include normal & therapeutic diets.

Total No. of diets including IRCH, CTC, NSC and R. P. Centre in the Year 1988-89 were:

Total No.	4,14,766
Private wards diets	42,060
General wards	1,94,009
I.R.C.H.	7,998
C.N. Centre	24,516
R.P. Centre	94,914

The various modified diets provided were:

Milk diets	2,730
Semi-solid diets	26,381
Various therapeutic feeds	22,158
Modified diets	1,77,390

The department runs a nutrition clinic which was attended by 2738 new and 455 old patients.

The department received 18 dietetic interns from all over the country for a period of 3 months for training, 3 M.Sc. students, (Institutional management & dietetics) of Delhi University and 4 students of M.Sc. (Dietetics) from Baroda University have undergone a practical training of 6-8 weeks. One M.Sc. student (food and nutrition) from University of Kashmir and 2 students of M.Sc. (Nutrition and Dietetics) from University of Chandigarh have undergone practical training. The department of dietetics also imparted training to 46 (B.Sc.) Hons. Nursing and 9 P.C. Nursing students.

Other activities

Mrs. Saroj Bala has become the Head of the Department of Dietetics after Mrs. P. Kaushik's

retirement. Mrs. Promila Kabra Duphare, has joined Drug-De-addiction Centre as a Dietician. Earlier she was a Tech. Asstt. with the Department of Dietetics. Mrs. Saroj Bala, has been selected as a member of the steering group of Nutrition in Planning Commission. She participated in the Workshop for development of curriculum and other resources material for vocational courses on Nutrition and Food preparations under the National policy of Education 1986, Ministry of Human Resources Development, Govt. of India, which was held in the Institute of Home Economics.

Miss Alka Khosla, from the Department of Dietetics got first prize for 'Best Diabetic Snack' in the Diabetic Contest, held in the Institute 'Diabetic Awareness Day' and her paper 'Nutrition Education for Community health workers in India', was selected and presented at the XIth International Congress of Dietetics held at Paris, July, 1988.

A new Food Testing Laboratory in the Main Kitchen for analysis of raw as well as cooked food as well as for research purpose has been started.

Crystalloid services

The unit has prepared about 2000 bottles of PAS-Enema and 500 bottles of steroid enema for clinical trial on the request of department of Gastroenterology and about 200 Vials 1ml/2ml of TSH injection for the Department of Endocrinology.

During the year 1988-89, the unit has distributed total No. of 4,24,966 different types of I.V. fluid bottles against the demand of 5,60,703 bottles after performing visual inspection to all the consuming wards/O.T.s and various laboratories.

Blood bank

Renovation of the A.I.I.M.S. blood bank was completed in 1988.

Donor collection

The blood bank collected 13030 donor units from relatives and voluntary donors in 1988-89.

The blood bank team accompanied the Indian Red Cross Society's blood donation camps on 76 occasions and collected 2415 units of blood.

Technical Work

Total No. of tests conducted in the blood bank was 1,51,582.

Routine immunoematology has been converted to microplate technique using monoclonal antibodies which is highly sensitive and economical. Platelet antibody detection using immunofluorescence technique has been started. HIV testing of all donor units was started with inputs provided by ICMR.

Teaching , training & workshops

Dr. Panigraphy, B.T.O. from Behrampur, Orissa spent one month at the blood bank for training in blood component work. Dr. Smit Sibinga from Groningen, Netherlands took-part in a workshop on 'Cryoprecipitate preparation and purification' conducted in the blood bank. This was part of the hemophilia workshop conducted under the auspices of the World Federation of Hemophilia, Hemophilia Federation of India, ICMR and AIIMS Deptt. of Hematology. Lectures on blood banking and immunoematology started for inservice technicians in the blood bank.

Staff

New posts were created for 7 technical staff and 3 other staff in the blood bank.

The various investigations under taken in the blood bank during the year 1988-89 is given in Appendix-VII.

Medical social service

Medical social services are mainly run by S.S. unit of 5 MSWS and 12 hospital guides under Medical Superintendent. The multifarious activities are organised in OPDs, wards, clinics and casualty. During rush hours medical social workers work in the OPDs and casualty. At the same time, the administrative lapses noted are included in the daily report sent to Medical Superintendent. This unit is providing centralised services to all the centres and speciality clinics in terms of guidance counselling, financial assistance for medicines ; funerals, food and fare ; exemption of levy charges and shelters etc. The other functions performed are medical terminal of pregnancy cases, case work of psychosomatic problems, adoption, orientation and training to NSS volunteers from various colleges and students of social work

The 12 hospital guides work as aids and are deployed mostly at the enquiry counters to assist and direct people to various places of investigations and OPDs. Besides pool of 5 MSWS, there are 12 more MSWS in the departments as follows: Paediatrics (1), C.N.Centre (2), IRCH (1), Ortho. OPD (2), Rehabilitation (1), Community Medicine (2), Psychiatry (1).

Activities performed in year 1988-89 were :

Financial assistance : In all 5330 poor patients were helped from poor fund and other sources for expensive drugs, appliances , food and fare and funerals.

a) Poor fund	2254
b) Outside community resources.	241
c) Trinks	2873

Patients helped in kind were as follows : crutches (192), sewing machines (3), tracheal tubes (6), calipers and other applicances (15), clothes (26), hearing aids (5), dentures (2).

Exemption of levy charges

720 cases were exempted of investigation charges and levy charges.

Rehabilitation

Series of interviews and discussions were conducted with patients, relatives, employers and other persons concerned for social, physical and financial rehabilitation of patients. Total number of patients helped were 261; for jobs (48); vocation (6).

Counselling and case work

20,153 cases were given counselling. About 25 cases referred from legal aid cell of dowry and marital discord were helped.

Adoption

Eight infants born of unwed mothers were given in foster care to couples registered with us after varying their particulars. 4 cases, given in foster care, in 87-88 were finally adopted legally through the court.

Accommodation

Approximate 7000 cases coming from outside Delhi were helped in getting shelter in Dharamshala in the near vicinity of hospital.

Teaching and training

600 NSS volunteers from various colleges were given orientation for how to help and guide patients in the hospitals.

Two trained MSWS from Delhi University and one from BHU were given apprenticeship training in the field of social work.

Library

Total number of patients who availed of reading magazines and books of patient's library were approx 4210.

Function of Diwali and X-mas were organised in children ward. Gifts were managed from the State Bank of India and Sewa Prakalp and distributed to the children. On invitation from NCERT, lectures on role of MSWS in the hospital were delivered in government school of girls by Mrs. Suman Banshi, Incharge MSWS.

Mrs. Suman Banshi was nominated and sent for H.Education training in CHEB. She successfully completed the training . She helped in the sale of tickets and organising the function Ramlila show on behalf of Hospital Welfare Society of A.I.I.M.S. to the federation of Hospital Welfare Societies in Delhi.

Laundry Services

The mechanised laundry services of hospital is providing services to all sections : main hospital, Dr. R.P. Centre, IRCH, CTC & NSC.

Hospital administrators from different parts of the country and abroad visited the mechanised laundry to gain first hand knowledge of the system.

Work load during 1988-89.

1.	Total pieces processed.	4035999
2.	Total weights in Kgs.	1233198
3.	Total cost of washing material/ detergents & chemical.	Rs. 429704
4.	Cost per piece of washing materials/ detergent & chemicals only.	Rs. 0.10 p.

HOSPITAL SERVICES (1988 - 89).

Attendance in O.P.D.'s and Speciality Clinics.

<u>Medical disciplines</u>	<u>New Cases</u>	<u>Old Cases</u>	<u>Total</u>
1. Medical O.P.D.	87000	48358	135358
2.Speciality Clinics :			
a) Chest	1742	3164	4906
b) Renal	1188	3540	4728
c) Endocrinology	5856	9080	14916
d) Nuclear Medicine	275	729	1004
e) Renal Transplant Clinic.		914	914
f) Immunology Clinic	263	4306	4569
Gastroenterology :	8995	14796	23791
Paediatrics :			
1. General O.P.D.	26212	25856	52068
2.Speciality Clinics:			
a) Well Baby	1175	2041	3216
b) Follow up T.B.	176	1241	1417
c) Genetic and Birth Defect Clinic.	817	612	1429
d) Renal	331	1557	1888
e) Paed. Neurology	402	2320	2722
Dermatology :			
1) General O.P.D.	32191	21776	53967
2) Speciality Clinics:			
a) Sexually Transmitted Disease	798	1461	2259
b) Allergy	876	1109	1985
c) Leprosy	610	3982	4592
d) Pigmentation	449	1355	1804
e) Psycho-sexual.	305	313	618

Psychiatry :

1. General O.P.D.	1570	9124	10694
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2.Speciality Clinics:

a) Drug Addiction Clinic.	262	328	590
b) Child Guidance	431	282	713
c) Walk-in-clinic	7954	-	7954

Surgical Disciplines:

1. Surgical O.P.D.	34096	24394	58490
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2.Speciality Clinics :

a) Plastic Surgery	571	116	687
b) Urology	4458	9133	13591

1.Pain Clinic :	76	544	620
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Paediatric Surgery :

1) General O.P.D.	7145	13201	20346
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2) Speciality Clinics:

a) Hydrocephalus	88	573	661
b) Inter Sex Clinic	132	550	682

Orthopaedics :

1. General O.P.D.	45835	95579	141414
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2.Speciality Clinics:

a) Physiotherapy	-	860	860
b) Follow up Clinic.	-	2866	2866
c) Tuberculosis Clinic	341	1733	2074
d) Polio Clinic	-	1135	1135
e) Scoliosis.	237	752	989
f) Hand Clinic	510	617	1127
g) Club foot(C.T.E.V.)	236	1789	2025
h) Arthritis.	96	125	221

Otorhinolaryngology & R.U.A.S. :

1. General O.P.D.	44444	24937	69301
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2.Speciality Clinics:

a) Audiology	195	506	701
b) Speech	2039	3987	6026
c) Hearing	1253	1914	3167
d) Voice	85	57	142
e) Rhinology	368	353	721
f) Vertigo	140	193	333

Obstetrics & Gynaecology :

1) General O.P.D.	30139	44066	74205
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2)Speciality Clinics :

a) Post Natal.	547	131	678
b) Infertility	698	1427	2125
c) Family Welfare	3588	5051	8639
d) Ante Natal	584	2509	8639
e) Endocrine Gynaecology.	176	424	600
f) High Risk Pregnancy	1666	9952	11618

Radio-Therapy :

1) General O.P.D.	340	5506	5846
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2.Speciality Clinic :

a) Radio-therapy in Gynac.	101	2778	2879
b) Radio-therapy in Surgery	197	4070	4267

Dental Surgery :

1) General O.P.D.	21073	19410	40483
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2)Speciality Clinics :

a) Orthodontics	396	3623	4019
b) Trigeminal Neuralgia	72	334	406
c) Restorative with Maxillo-Factal Prosthesis,	697	744	1441
d) Oral Prophylaxis	1269	3164	4433
e) Cleft Palato-cum- Genetic-counselling.	26	255	281

Others :

1) E . H . S .	59451	54349	113800
2) Casualty	91480	-	91480
3) Nutrition	2738	455	3193
4) Deptt. of Rehabilitation Artical Limbs.	10006	45838	55844
5) Marriage Counselling clinic.	3143	6291	9424

TOTAL : 550590 554535 1105125

N.B. :- The figures of Cardiology, Neurology and
Neuro-Surgery Clinics are not included.

IN - PATIENTS (1988-89)

SL. No.	Departments / Sections	Numbers
1.	Medicine	4534
2.	Endocrinology	360
3.	Gastroenterology	1256
4.	Cardiology	2497
5.	Neurology	1253
6.	Surgery	5385
7.	Neuro-Surgery	1820
8.	Cardio-Thoractic Vascular Surgery	1996
9.	Urology	688
10.	Orthopaedics	1951
11.	Paediatrics	3872
12.	Dental Surgery	69
13.	Paediatric Surgery	1193
14.	Psychiatry	408
15.	Otorhinolaryngology	1252
16.	Dermatology	1140
17.	Obstetrics	6700
18.	Gynaecology	997
19.	Neonatal	1797
20.	Radiotherapy	450
21.	Nuclear Medicine	
	(Oct. 88 to March 89)	23
22.	Gastro-intestinal & Transplantation Services	92
23.	Short Admissions (AB - 8)	6233
Total :		43966

SURGICAL PROCEDURES (1988-89)

Sl. No.	Departments	Major	Minor	Total
1.	Cardio-Thoracic & Vascular Surgery.	1884	6	1890
2.	Casualty	716	5922	6638
3.	Dental Surgery	576	7480	8056
4.	General Surgery	2123	14542	16665
5.	Gynaecology	1353	5794	7147
6.	Neuro - Surgery	1081	366	1447
7.	Obstetrics	1661	2772	4433
8.	Orthopaedics	1592	1164	2756
9.	Otorhinolaryngology	863	31134	21997
10.	Paed. Surgery	1205	2730	3935
11.	Plastic Surgery	168	47	215
12.	Urology	789	1919	2708
13.	Gastro-intestinal & Liver Transplantation Services. (Jan. 89 to March, 89).	86	1	87
Total		14030	63877	77907

STATEWISE DISTRIBUTION OF IN -PATIENTS
(1988 -89)

States	Number of Patients.
Delhi	27 965
Uttar Pradesh	7 263
Haryana	3 653
Punjab	362
Rajasthan	689
Other States	3 759
Other Countries	275
Total =	<u>43 966</u>

YEARLY STATISTICAL HEALTH BULLETIN
(1988 - 89)

1.	Total Patients Discharged.	34343 + 6233(AB8)
	a) Adults & Children .	32634
	b) New Born Infants .	1709
2.	Days of care to patients discharged.	308802 + 6233 (AB8)
	a) Adults & Children .	300751
	b) New born Infants .	8051
3.	Average length of stay (based on days of care to the patient discharged).	9.0
	a) Adults and Children.	9.2
	b) New Born Infants .	4.7
4.	Total Deaths (Including New born)	1850
	a) Deaths under 48 Hours .	756
	b). Deaths over 48 Hours .	1094
	c) Gross death Rate (in %)	5.4
	d) Net death rate (in %)	3.2
5.	Total number of patients cared for in Hospital (as per daily census).	309032
	a) Adults & Children	298501
	b) New born Infants .	10531
6.	Daily Average number of patients.	847
	a) Adults & Children	818
	b) New born Infants .	29
7.	Average percentage of Bed Occupaney :	94.8
	a) Adults & Children	95.5
	b) New born Infants.	77.9
8.	Births in Hospital :	1797
	a) Male Babies	919
	b) Female Babies	878

9. Type of admission during the year
(based on discharged) :

a) Routine

b) Emergency

c) Medico-legal Cases

34343 + 6233(AB8).

30637

3461

245

DEPARTMENTWISE DISTRIBUTION OF ADMISSIONS & DISCHARGES
FOR THE YEAR, 1988 - 89.

Service	Admissions .	Discharges .	Days of Stay.	Average length of stay in days.	Total Deaths.	Deaths under 48 hours.	Deaths over 48 hours.	Deaths Gross in % .	Net Deaths in percentage.
TOTAL	37733 + 6233.	34343 + 6233.	308802+6233.	9.0.	1850	750	1094	5.4	3.2.
Medicine	4534	3849	36623	9.5	489	235	254	12.7	7.0
Endocrine	360	339	4617	13.6	7	1	6	2.0	7.0
Gastroenterology	1256	1137	8698	7.6	170	83	87	15.0	8.2
Neurology	1253	1190	11869	10.0	119	44	75	10.0	6.5
Cardiology	2497	2276	16559	7.3	145	67	78	6.4	3.5
C.T.V.S.	1996	1847	19283	10.4	134	19	115	7.2	6.3
General Surgery	3385	3223	37591	11.6	111	27	84	3.4	2.6
Psychiatry	408	391	9155	23.4	1	-	1	0.2	0.2
Orthopaedics	1951	1787	24608	13.7	37	8	29	2.0	1.6
Neuro-Surgery	1820	1627	19556	12.0	195	64	131	12.0	8.4
Urology	688	629	13776	21.9	9	3	6	1.4	1.0
Gynaecology	997	1049	12433	11.8	14	4	10	1.3	1.0
Obstetrics	6700	5989	27153	4.5	1	1	-	0.1	-
N. N. T.	1252	1161	11784	10.1	13	3	10	1.1	0.8
Dermatology	1140	1075	8187	7.6	11	1	10	1.0	0.9
New Born	1797	1709	8051	4.7	39	24	15	2.3	0.9
Paediatrics	3872	3244	20111	6.2	252	145	107	7.7	3.4
Pead. Surgery	1193	1186	12255	10.3	83	22	61	7.0	5.2
Radio - Therapy	450	455	4706	10.3	10	3	7	2.2	1.5
Dental Surgery	69	73	558	7.6	-	-	-	-	-
Nuclear Medicine									
(Oct. '88 to March '89).	23	21	123	5.8	-	-	-	-	-
Gastro intestinal & Liver Transplantation Services.									
(Jan. 89 to March' 89).	92	86	1106	12.9	10	2	8	11.6	9.5
AB 8	6233	6233	6233	1.0	-	-	-	-	-

A.I.I.M.S. BLOOD BANK
(1988 - 89).

Blood Collection

Relative donors	10335
Received from IRCS	2415
Voluntary donors	280

Total collection 13030.

ABO & Rh

Total test conducted
1,51,580 .

ABO	40964
Rh	32458
D.C.T.	303
I.C.T.	563
Titre	69
Cross matching	19052

Hepatitis B Antigen test :

Total	16982
Positive	502

VDRL Test

Total	10759
Positive	74

HIV Test

w.e.f. 4/10/88 to 31/3/89.

Total	6529
Positive	Nil

Components

Fresh Frozen Plasma (FFP)	842
F.P. Single Unit Liquid Plasma	1359
Cryoprecipitate	907
Platelet concentrate	961
Platelet Rich Plasma	225
Packed cell	2426
Plasmapheresis	24

Centralised Blood Collection Centre

Centralised blood collection centre collects blood for O.P.D. patients. Number of samples collected for different laboratories are as follows.

Laboratory	No. of sample collected
1. Department of laboratory medicine	46.782
2. Blood bank	03.484
3. Microbiology	15.449
4. Miscellaneous	02.293
Grand total	68.008.

Chapter 5

COLLEGE OF NURSING

FACULTY

Principal	Mrs. M.D. Sharma
Lecturers	M. Vatsa
	M. Aggarwal
	S.N. Williamson
	U. Handa
	S. Gupta
Nursing Tutor	G. Razdan
Tutors	S. Gulati
	S.K. Pillai
	A. Qureshi
	A. Varghese
	M. Goswami
	R. Andrews
	D. Phirozshaw
	A. Bhargawa

Ms. A. Bhargava joined as tutor in September 1988.

EDUCATION

44 B.Sc. (Hons.) Nursing students and 8 B.Sc. Nursing (Post Certificate) students graduated from the College of Nursing this year.

Continuing Medical Education

Faculty members of the College organised, participated or attended the following workshops and conferences (a) "National Nurses' convention" - Aug. 1988. (b) Nurses' leadership training course on "care of the high risk neonate in developing countries at Srinagar, Sept., 1988. (c) First national congress of nursing research Sept., 1988. (d) Biennial SNA conference, Bombay, Oct. 1988 (e) Community health nurses' meet, Bombay, Oct. 1988. (f) "Nursing management of patient with HIV infection and Aids" - Bangkok, Oct. 1988. (g) Refresher course in management skills in Nursing Theme - "Patient care standards". Delhi, Nov. 1988. (h) Critical care nurses programme of the Asian Pacific society of Cardiology. (i) World Aids day at WHO, SEARO. (j) Delhi Branch TNAI conference (k) Three workshops on clinical management of Aids: organised by Ministry of Health & FW & WHO, at Bombay, Jan. 1989 Lucknow, Feb. 1989 AIIMS, March 1989.

Ms. Manju Vatsa gave lectures on a) Nursing process and b) Introduction to Nursing Research in TNAI Management Courses for nurses.

Ms. Sandhya Gupta spoke on Groups dynamics & IPR & Communication skills in the RAK College of Nursing Workshop and Psychotherapy.

Three inservice training courses in Intensive Care nursing and O.T. techniques of 3 weeks duration each were organised by the college for the nurses at AIIMS hospital. 15 nurses participated in each of the three courses. A total of 44 nurses successfully completed the course & were awarded certificates :- Mrs. A. Varghere, Mrs. S.K. Pillai along with B.Sc. (P.C) students organised the courses . Two ten day

orientation courses were organised for 22 nurses of the newly started deaddiction centre, by Ms. Sandhya Gupta. Lectures on 'Aids' for nursing staff once a week from sept. 1988 - Dec. 1988. App. 300 nurses attended the lecture by Ms. Alka Bhargawa.

AWARDS AND EVENTS

Distinctions, Awards, Honour

Dr. (Mrs.) M.D. Sharma has been nominated on the editorial board of the 'Nursing Journal of India' the official Journal of the Trained Nurses Association of India.

Significant Events

Mrs. 'Handa' was deputed for a project of Ministry of Health & Family Welfare on "Evaluation of ANM/LHV training programme in India".

Dr. (Mrs.) M.D. Sharma & Mrs. V. Handa were invited for discussion on "Nursing research inputs in SEARO.

Lamp lighting ceremony for 2nd year B.Sc. (Hons.) Nursing students was held for which Mrs. Roma Majumdar was the chief guest.

The students participated in a debate on the NIHF annual day and won 2nd prize.

Community Services & Education

Ms. Alka Bhargawa gave a talk on TV on "Aids its prevention & control measures" in Jaan Hai Jahan Hai programme and a similar talk was given on TV at Lucknow.

Exhibition on 'Aids' on "World Aids day" was put up by the teachers and students of the college of Nursing. Exhibition put up on Aids Prevention is better than cure on Institute day.

Mrs. Qureshi participated in Youth training programme organised at Rajiv Gandhi Camp and took classes on child care.

Students and staff participated in Well baby show, Immunization Camp, Cholera Camp & Post Partum Camps organised by (Comm.Med.) deptt. & deptt. of Ob. & Gynae. The SNA members participated in Delhi branch & national competitions and won prizes. A total of 50 families were nursed and approximately 100 talks on health matter were given.

Chapter 6.1

ANATOMY & HISTORY OF MEDICINE

FACULTY

Professor and Head	V. Bijlani
Professors	M.C. Vaidya
	G. Gopinath
Additional Professors	A.K. Susheela
	K. Kucheria
	U. Sabherwal
	S. Wadhwa
	R. Kumar
Associate Professor	N.K. Mehra
Assoc. Professor (DST)	G.F.X. David
Assistant Professors	R.D. Mehra
	V. Bala Manhas
	M.L. Ajmani

Dr. G. Gopinath was promoted to the post of Professor and Dr. S. Wadhwa as Addl. Professor in April 1988; Dr. Rani Kumar was promoted as Addl. Professor in Oct, 1988.

EDUCATION

Continuing Medical Education

During the period under review the department organised two workshops in CME programme.

Second National course in Neurobiology for postgraduates in clinical neurosciences was organised from 14-25th November, 1988 in collaboration with the Department of Neurosurgery. The course was sponsored by the Department of Science and Technology and was attended by 40 students from different parts of the country. The faculty was drawn from AIIMS and other parts of the country.

Dr. Bijlani gave lectures on the "morphology of neuronal connectivity" and "cellular events in the developing brain." Dr. Gopinath gave lectures on "axonal transport and neuronal transplantation - morphological considerations"; Dr. Wadhwa gave a lecture on "organisation of the visual system." Dr. Mehra gave a lecture on "immunological studies on experimental allergic encephalitis."

Workshop on effective use of learning resources in teaching of Anatomical Sciences was held from 5-7th December, 1988. The workshop was sponsored by the W.H.O. and National Academy of Medical Sciences. Twentyfive teachers from different medical colleges of the country were given training in preparing audiovisual aids mainly tape slide programme, overhead projection material and video-cassette for teaching anatomy. The faculty was drawn from the AIIMS and experts in education technology from I.G. National Open University, New Delhi and JIPMER, Pondicherry.

Dr. Sabherwal and Dr. Mehra gave lectures on the preparation of video cassette programmes and its use in teaching anatomy; Dr. Wadhwa on tape slide programme; and Dr. Kumar and Dr. Kucheria gave lectures on overhead projection material.

Dr. Bijlani gave a talk on "Nociceptive microcircuitry in the dorsal horn", Dr. Gopinath on "Inoculo differentiation of embryonic neocortex into retina in adult rat" and Dr. Wadhwa on "Critical developmental phases in the ontogeny of human lateral geniculate nucleus", in an international conference on the Neurobiology of Sensory Systems organised by TIFR at Goa in September 1988.

Dr. Bijlani spoke on "Development of spinal dorsal grey neurons in man", Dr. G. Gopinath presented MPTP model of Parkinson disease in monkey - Implication in neural transplantation", Dr. S. Wadhwa presented "Neurotransmitter development in the human lateral geniculate nucleus"; and Dr. R. Mehra spoke on "Neurotransmitters in developing monkey visual cortex", in an Indo-Soviet symposium on "Developmental Neurobiology and Neural Transplants" in November 1988. The symposium was sponsored by INSA and USSR Academy of Sciences.

Dr. Bijlani spoke on "Nutritional and genetic influences on neuronal development" and Dr. Wadhwa participated in a symposium on Neurotransmitters in Health and Disease and spoke on "Substance P in developing visual system" - In the 8th Annual Conference of Indian Academy of Neurosciences at Chandigarh held in March, 1989.

Dr. Bijlani and Dr. Gopinath participated in a workshop at Simla in October, 1988 on "Educational planning and examination".

Dr. M.C. Vaidya organised 7 continuing medical education symposia and courses for general practitioners.

Dr. A.k. Susheela presented a paper on "Health monitoring of industrial workers exposed to fluoride", in the International Conference on air and water pollution, September 1988, Bombay.

Dr. K.Kucheria delivered a lecture on "Sex determination and differentiation"; in the 8th Orientation Training Course, National Institute of Health and Family Welfare, New Delhi, December 1988 and on "Molecular and cytogenetic aspects of sex determination" in DAE symposium on Human Genetics, Ahmedabad, 1989.

Dr. Mehra gave guest lectures on "Immunogenetics of insulin dependent diabetes in India", during the Indo-US Diabetes Conference, New Delhi, December, 1988; in National Symposium on Recent Developments in Immunodiagnosics and Vaccines, Siliguri, November 1988 on "Role of HLA diagnostics in health and disease", in Indo-French colloquium on Vaccinology, February 1989; on "HLA-DNA" Polymorphism - Recent advances", New Delhi. Dr. Mehra and Dr. Raj Mehra were invited as guest faculty in the update in Immunodiagnosics - Role of Biotechnology, organised by P.G.I., Chandigarh, March 1989. They gave lectures on "MHC and disease" and "Insitu hybridization" respectively.

Dr. G.F.X.David gave a lecture on the use of Electron Probe Micro Analyser and Tracer Techniques in Biological Studies; in the national workshop on Theory and Application of Electron probe Microanalyzer, University of Delhi, July, 1988 ; spoke on "Tracer Techniques in Electron Microscopy" at II National Workshop on Practical Techniques in Electron Microscopy, August, 1988, Madras Medical College, Madras; and spoke on "Seasonality in the Reproductive Physiology of male rhesus monkeys" at the workshop on Primate Management and Experimentation, November, 1988, AIIMS.

Dr. Susheela delivered a lecture on "Fluorosis" at Karnataka Medical College, Hubli in July, 1988; "Little known facts about Fluorosis : A Public Health Problem" at Institute for Research in Reproduction, Bombay in October 1988; "Drinking water contamination with fluoride and associated health problems" at the All India Institute of Hygiene and Public Health, Calcutta in January 1989.

Dr. Gopinath gave a lecture on "Developmental Neurobiology" at Lady Irwin College, New Delhi, November 1988 and Dr. A.K.Susheela gave a lecture on "Drinking water food contamination with fluoride and health problems" at Lady Irwin College, New Delhi, February 1989.

The following personnel were given training in different laboratories of the Department of Anatomy:

Dr. K. Hussain, Scientist, Industrial Toxicology Centre, Lucknow - 1 week; Dr. A.K. Agarwal, Scientist, Industrial Toxicology Centre - 1 week; Dr. R. Muthuswamy, Reader, PGIMS, Madras - 2 weeks; Dr. A. Vani, Assistant Professor, Deptt. of Anatomy, Gandhi Medical College, Hyderabad - 4 weeks; Dr. V.K. Tule, Lecturer, Deptt. of Biochemistry, Nagpur University, Nagpur - 3 months; Dr. Neelee Jayashree, Assistant Professor, Department of Anatomy, Gandhi Medical College, Hyderabad - 4 weeks; Dr. R.A. Sangama, Department of Pathology, Guwahati Medical College - 6 weeks; and Dr. Sukanya Chaudhury, Department of Cell Biology, Indian Institute of Chemical Biology, Calcutta - 1 week.

Electron microscope facility offered to investigators

SEM facility: During the period 45 investigators (both in-house and other institutions) used the facility. This included facilities for preparation of specimens and observations and in some cases interpretation of results from the micrographs.

TEM facility: The faulty High Tension Tank of the EM-300 was replaced and the facility has been made available as of March this year.

Ultra-microtome facility: The two microtomes available under the facility have been made available to investigators, particularly those registered for Ph.D. degree. Technical assistance to procure good ultra-thin sections was also provided.

RESEARCH

Research Completed

Development of peptidergic neurons in monkey visual cortex

Neuropeptides substance P (SP) and neuropeptide Y (NPY) were localized in monkey visual cortex using light and electron microscopic immunohistochemistry, to describe their distribution pattern in adult cortex and to document their sequential developmental pattern. The results revealed that the two peptides differ in their distribution pattern while NPY perikarya are present in supragranular layers and in deep white matter the SP neurons are present throughout the cortex including white matter. However, maximum density of these latter peptidergic neurons is in layer IV and layers II/III. SP staining showed dark and light cells whereas NPY perikarya had more homogenous staining properties. Double labelling studies revealed that the two peptides coexist in some neurons. SP was also colocalized in GABA containing neurons.

The two neuropeptides differ in their developmental sequence also. NPY immunoreactivity appears much before ("between day F60-70), SP (between F75-90). NPY immunoreactivity also attains adult distribution pattern early in prenatal age. SP localization reveals age related laminar specific changes and attains adult pattern much after birth (12 weeks postnatal).

Studies on Ia expression in EAE induced monkeys

Experimental allergic encephalomyelitis (EAE) is an autoimmune, inflammatory and demyelinating disease of CNS. Ia antigen expression is an essential component of immune response and has been reported to increase in rodents with induced EAE. We observed an enhanced staining for Ia in the CNS endothelium of long-tailed macaques induced to develop acute EAE by sensitization with monkey myelin basic protein (BP) in complete Freund's adjuvant (CFA). With immunoperoxidase staining of frozen tissue sections, the frequency

of Ia⁺ cells and vessels was quantitated over time. In early lesions there was no cellular infiltrate and marked staining of the endothelium. In older lesions the endothelium was markedly less positive for Ia, although extensive infiltrates of Ia⁺ cells persisted in the lesions. These findings suggest that in vivo modulation of endothelial Ia expression may play an important role in the progression of EAE.

Evaluation of experimental immunotherapy in leprosy

Immunotherapy by cell transfer (lymphocytes and monocytes) from healthy animals was done to study the drug resistance in leprosy. The results of the present study showed induction of few changes in the different organs after cell transfer. The changes were related to the presence of few lymphocytes in the deep dermis and around the perineurium of the sciatic nerves. It is probable that the transfused cells may be drawn into the skin lesions. The time for which these were studied was inadequate to provide any immune response. The syngeneic response as known is very weak and takes prolonged period of months.

Mononuclear cells were increased with the reduction of foamy cell structures in the outer cortex of the lymph node. No changes were noticed in the paracortical areas after cell transfer. It may be inferred that the increase in the number of mononuclear cells may be the result of transfused cells in the recipients.

The experiments with syngeneic T,B and macrophages in few animals showed increase in mast cells in the skin at three months after immunotherapy.

Clinico-genetic and steroid hormones in Eunuchs

Eunuchs, the individuals of unnecessary sex neither belonging to male or female sex were evaluated for clinical, genetic and hormonal profile. Chromosomal counts and hormonal levels (Testosterone and LH) were same as in normal male. Some of the Eunuchs who had undergone castration did show low testosterone levels.

Fluoride Action on Erythrocytes

Fluoride is accumulated in the erythrocyte membrane. Fluoride inhibits the activity of enzymes, glucose-6-phosphate dehydrogenase and pyruvate kinase in erythrocytes under in vivo conditions leading to impairment of carbohydrate metabolism. Fluoride alters the activity of membranal enzymes (ATPase) affecting the transfer of calcium and magnesium in erythrocytes.

Homeostatic regulation of sodium and potassium in plasma is maintained even during fluoride toxicity in rabbits. Fluoride alters the composition of the sialoglycoproteins of the erythrocyte membrane and perhaps induces the process of ageing in erythrocytes. Fluoride is yet another chemical substance responsible for echinocyte formation in rabbits and human subjects.

Fluoride inhibits antibody formation in rabbits and therefore, affects their surveillance mechanism.

Immunological and immunogenetic studies on aortoarteritis in Indian population (Anat, Path)

Histocompatibility antigens in autoimmune thyroid disease (Anat, Endocrin)

Research Continuing

Developing human visual cortex (area 17)

Golgi Cox and immunohistochemical techniques have been used to elucidate morphological development of visual cortex. At 14-15 weeks, large number of bipolar cells oriented vertically and having numerous varicosities on their dendrites are seen in cortical plate. Well developed Cajal Retzius cells are seen horizontally placed in the marginal zone. At 24-25 weeks bipolar cells are seen in the superficial layers of cortical plate while the deeper layers have mature cells with triangular profile and simple dendritic pattern. At 32 weeks pyramidal and stellate cells are

identifiable with more complex dendritic arborization. Immunohistochemical localisation of substance P and serotonin has revealed immuno-positive fibres in the intermediate zone at 16 weeks of gestation which increase in number with increasing age, and by the 22-23 weeks the number of fibres is found to decrease.

Volumetric growth and synaptic profile of prenatal human lateral geniculate nucleus (LGN)

It has been observed that the total volume of human LGN increased from 5.04 cu.mm at 13-14 weeks to 39.04 cu.mm at 34-35 weeks. This represents a seven and a half times increase in volume over the period of 22₆ weeks. The synaptic density is found to be 0.3×10^6 , 1.37×10^6 and 1.55×10^6 at 13-14, 17-18 and 25-26 weeks respectively while the estimated total synapse counts at these ages are 1.5×10^6 , 21.6×10^6 and 33.66×10^6 .

Immunohistochemical studies on the afferents to dorsolateral geniculate nucleus in albino rat

The neuropeptide substance P (SP) profile has been studied in albino rats of 5 days to 40 days postnatal age. The SP immunoreactivity is present in the ventral lateral geniculate nucleus (VLGN) and intergeniculate leaflet in all the age periods studied, in the form of a plexus of terminal fibres. In the dorsolateral geniculate nucleus SP immunoreactivity is much less compared to VLGN and is seen as fibres running vertically through the nucleus. The different amount and pattern of this neurotransmitter may be related to the different functions of these two parts of the lateral geniculate complex.

Development of human dentate nucleus

The general morphology of the dentate nucleus has been studied by making three dimensional reconstruction from the composite camera lucida tracings of 10 μ m thick paraffin sections. Dentate nucleus of cerebellum is smooth, 'C' like at the age of 15 weeks of intrauterine life. Gyric convolutions were first seen

in the dorsomedial region of the nucleus at 17-18 weeks of age. At 24-25 weeks of age even the ventrolateral region showed these convolutions and the nucleus starts simulating the adult structure in appearance. The total volume of the nucleus increased to 25.4 cu.mm at 24-25 weeks from 2.1 cu.mm at 15 weeks of gestation. The mean cell diameter was 10.78 μ m, 16.6 μ m at 15 weeks and 24-25 weeks respectively. The numerical density declined from 115×10^3 /cu.mm to 80×10^3 /cu.mm at the above age period indicating the arborization of neurons and development of neuropil.

Embryonic effects of sodium valproate in mouse model

Effects of sodium valproate on developing nervous system have been studied in mice after administering drug to pregnant female. Histological studies on brains of fetuses at embryonic day 19 have shown that the cerebral cortex consists of a marginal zone and a thick cortical plate and the brain stem has cells with round to oval perikarya, uniformly distributed, without any differentiation into cellular groups. Histochemical studies to localise serotonin and gamma aminobutyric acid have revealed that serotonin appears early in the brain stem. Serotonergic fibres were consistently seen in the 16 fetuses examined after antenatal drug exposure. These fibres were present in the ventral mesencephalic region. GABAergic neurons were not observed at this period. Further postnatal studies are in progress.

Studies on calcified tissue matrix

GAG and its isomers in fluorosed human teeth have been investigated for its matrix constitution. Glycosaminoglycans and disaccharides have low concentration in fluorosed teeth compared to normal. The dermatan sulphate content is increased. The high ratio of 4-sulphated to 6 sulphated GAGs have been found in teeth of those ingesting excess fluoride. Increased dermatan sulphate may be an important factor in the chemical manifestations of dental fluorosis. Small molecular weight GAG molecules and an increase in the charge density heterogeneity in the sulphated

glycosaminoglycans of fluoride treated subject tooth as compared to normals have been observed.

Epidemiological studies in an endemic district for fluorosis

It has been observed from our field surveys conducted in endemic villages in Faridabad district, that out of the 960 subjects interviewed, 62% have dental fluorosis, 38% have been afflicted with skeletal fluorosis and 53% of the population have non-skeletal manifestation of which 36% of the population have early warning symptoms of fluoride toxicity and complaints are confined to the gastrointestinal system. It was evident that those having manifestations have been consuming water having fluoride ranging from 1.14 to 8 ppm. It is also true that of the 74 drinking water sources, 11 sources are having safe water and the people have been advised to use the safe water for cooking and drinking purposes.

Fluoride toxicity and gastro-intestinal problems

The effect of chronic fluoride toxicity on duodenal mucosa of rabbits have been investigated using scanning electron microscopic studies. It was observed that the surface of the microvilli of the duodenal epithelium revealed a "cracked-clay" appearance; abrasion on the villus due to epithelial degeneration and mucus coated degenerated cells formed strands over the villi are also observed. Similar studies are being extended to human subjects afflicted with fluorosis in collaboration with the Gastroenterology Department of AIIMS.

Immunochemical study in the uterocervical cancer

The chemicals for evaluation of IL-2 in serum and IL-2 in the cell in the patients suffering from uterocervical cancer have been procured. The techniques standardized include the in vitro culture of lymphocytes and macrophages, IL-2 estimation, T, B cell counts etc. The normal individuals age matched for the study have been taken for standardization, to follow

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326, V Main, I Block

Koramangala

now with the patients material.

Health survey to evaluate the effects of urban air pollution

The pollution control board under the Ministry of Environment and Forest have set up an Air Monitoring Station at Fish Road, Shahadra. It is a computerised equipment with capacity to evaluate traces of CO, SO₂, elements, particulate matter etc. in the ambient air. The project deals with evaluating the pollutants in the atmosphere and to get a baseline data of the health and diseases in the adjoining 2000 houses. The survey of environment and health will again be conducted after a year to reveal the effect of pollution on the health.

4th Asia-Oceania histocompatibility workshop cell lines

Forty cell lines were selected from among the normal, healthy families already tested for HLA class I and class II antigens on the basis of specific haplotypes i.e. MHC haplotypes known to be associated with different diseases or ethnic ancestral haplotypes. These individuals were retested on 120 HLA workshop antisera in order to detect the complete supertype. Fresh peripheral blood lymphocytes were harvested from each subject and EBV transformed cell lines established for further use in DNA typing and cell cloning. This exercise will help in establishing disease specific subtypes prevalent in India and will form the basis of our future disease association studies.

Characterization of peptidergic neurons in the visual cortex of monkey

Detailed studies have been undertaken to ascertain the functional significance of substance P in monkey visual cortex. Cortex sections stained with a polyclonal antibody are being currently analysed. This is an interesting antibody which stains terminals very elegantly. Interestingly, this antibody also stains small pyramidal neurons. So far most peptides have been described to be localised only in non-pyramidal interneurons of visual cortex. Efforts are on,

therefore, to characterise the antigen stained by this antibody.

Insitu hybridization and immunocytochemical studies on GABAergic neurons in the visual cortex of monkey

There is no report in literature of GABA, the major classical inhibitory neurotransmitter, and its synthesising enzyme glutamic acid decarboxylase (GAD) having been co-localized in the same neuron. We have used immunocytochemistry and insitu-hybridization techniques individually and in combination to study the distribution of GABAergic neurons in the visual cortex of monkey. Immunocytochemistry was done on frozen sections of aldehyde fixed brain using antisera to GABA and GAD. Insitu hybridization was done on the same tissue using a S-35 labelled ribprobe generated from a cDNA clone for human GAD. Both adult as well as developing visual cortex were studied. In adult cortex 18% of total neurons were found to be GABAergic. Two subtypes of these neurons could be further identified; 66% of cells were with low insitu hybridization grain counts but heavy immunocytochemical labelling and 34% cells with high grain counts but light immunocytochemical labelling.

Developmental sequence of these neurons is also being analysed.

Scanning electron microscopic studies on the internal architecture of mammalian organs

Preliminary studies were carried out in the rabbit. Various organs were fixed, sectioned (cryostat) and the exposed surface was prepared further and observed under the scanning electron microscope. The internal variations in the architecture of different regions of the organs can be visualized. The study is in progress.

MPTP model of Parkinson's disease in rhesus monkey (Anat, NSC)

Transplantation of fetal substantia nigra in the MPTP

model of Parkinson Primates (Anat, NSC)

Behaviour of the transplanted adrenal medullary cells in the the anterior chamber of the eye, lateral ventricle and striatum of rat (Anat, NSC)

Behaviour of fetal nigral cells in the anterior chamber of the eye, lateral ventricle and striatum in rat(Anat, NSC)

Kainic acid lesion and transplantation in the preoptic area in rat (Anat, NSC, Physical)

Detection of early myocardial ischaemia - an experimental study (Anat, CTC,Path)

Effect of anticonvulsant drugs and epilepsy on reproduction in males (Anat ,NSC)

1

Fetal diagnosis : An approach towards reducing incidence of birth defects (Anat, Ob & Gyn.)

Role of MHC and Non-MHC genetic factors in governing susceptibility to rheumatic heart disease(Anat, CTC)

HLA-D region genes in governing susceptibility to D-penicillamine induced myositis: (Anat, Med)

Immunogenetics of systemic lupus erythematosus(Anat,Med)

Immunogenetic spectrum of HLA-B27 associated spondyloarthropathies (Anat,Med)

HLA-haplotype associations in insulin dependent diabetes mellitus (Anat, Endocrin)

Idiopathic polymyositis/dermatomyositis (Anat, Med)

Ir genes in pulmonary tuberculosis (Anat, Med)

Molecular basis of HLA-DR2 association in mycobacterial disease (Anat, Med)

New Research

1. An experimental study on imperforate anus using chick as a model.
2. Characterization of aortic antigen in experimentally induced aortoarteritis.
3. Evaluation of transitory expression of substance P in Macaque visual cortex.
4. Immunological studies in neural transplantation.
5. Insitu hybridization studies on human fetal brain.
6. Teratogenic effects of nicotine on developing nervous system.
7. Cytogenetic and molecular basis of aneuploidy.
8. Modulatory influences of disulfiram, amniogluthethimide and tamoxifen on methyl cholanthrene (MCA) induced uterine cervical carcinoma of mouse.
9. Modulatory effects of B-carotene, betelnut and nicotene on experimental cervical carcinoma of mouse.
10. Immunological and immunogenetic studies in 'overlap' cases of rheumatoid arthritis and spondyloarthropathies.
11. HLA studies in vitiligo.
12. IEF variants in HLA-B27 associated spondyloarthropathies in India.
13. Molecular studies in rheumatic heart disease using HLA-D region cDNA probes.
14. Light and electron microscopic localization of steroid-binding protein(s) (SBP) on the spermatozoa of fertile and infertile men.

15. Seasonal changes in the testicular morphology of the adult rhesus monkey - An ultrastructural study.
16. Scanning electron microscopy of the internal architecture of various organs in the rhesus monkey.

AWARDS AND EVENTS

Distinctions, Awards, Honour

Miss R.S. Padma, Ph.D. student, was recipient of Young Scientist Award of Indian Science Congress at the annual meeting at Madurai in January, 1989.

Mr. A.K. Shetty was awarded Tulsabai Somani Educational Trust Best Poster Award on "Long Term Behaviour of Adrenal Medulla Transplants in Oculo" at the 8th Annual Conference of Indian Academy of Neurosciences held at Chandigarh in March 1989.

Miss Renu Sethi, Ph.D. student, was awarded Dr. K.S. Krishnan Award from Bhabha Atomic Research Centre, Department of Atomic Energy, Bombay.

Paper submitted on "Teratogenesis in chick embryos using sera of neonates with meningomyelocele" by Dr. Sudhir Chandna (guided by Dr. Rani Kumar) was awarded U.C. Chakravorty award for the best paper of the year 1988 at the Silver Jubilee Conference of Association of Surgeons of India, December, 1988.

Dr. S. Wadhwa was awarded Shakuntala Amirchand Prize for the year 1988 for research work in developmental neurobiology on the subject of developing human lateral geniculate nucleus.

Dr. V. Bijlani was conferred Membership of the Society for Value of Science.

Dr. A.K. Susheela was awarded the Fellowship of

National Academy of Medical Sciences in January, 1989.

Dr. U. Sabherwal was nominated Member of the National Academy of Medical Sciences.

Dr. S. Wadhwa was nominated to be the Member of the Indian Academy of Neurosciences.

Dr. V. Bijlani, Dr. G. Gopinath and Dr. R. Kumar were nominated Members of Executive Committee of Indian Society for Pain and Research Therapy, Indian Academy of Neuroscience, Anatomical Society of India respectively.

Significant events

Dr. V. Bijlani and Dr. N.K. Mehra were invited to participate in the DST-SERC National Seminar on Review and Update of Thrust areas in Life Sciences, December 1988 at Lucknow.

Dr. M.C. Vaidya visited Tripoli as an External Examiner in Anatomy.

Dr. G. Gopinath was W.H.O. short term Consultant to Bangladesh College of Surgeons and Physicians, Dhaka and as External Examiner in Anatomy for the Fellowship examination and also to evaluate existing examination system.

Dr. A.K. Susheela was Consultant for the submission on Control of Fluorosis and Member of Expert Committee on Defluoridation of Water under the National Drinking water Commission.

Dr. U. Sabherwal was Technical Expert to the Bureau of Indian Standards on anthropometric data in February 1989.

Dr. N.K. Mehra participated in the National Conference on Biotechnology in the DST group conference to assess the progress of research in India, New Delhi, December 1988.

Dr. R.D. Mehra was awarded BOYS-CAST fellowship of the Department of Science and Technology under which she spent 21 months at the University of Washington, Seattle, U.S.A.

Dr. N.K. Mehra has been elected Councillor for the 4th Asia Oceania Histocompatibility Workshop Conference (4AOHWC) to be held in Australia in 1992.

Dr. M.C. Vaidya has been nominated as Member of the Working Group on Medical and Health Research for the preparation of 8th plan by the Planning Commission, Government of India.

Dr. M.C. Vaidya initiated launching of Afro-Asia Oceania Association of Anatomists as a registered regional body. The first congress was held from 29th August to 3rd September, 1988.

Dr. Vaidya was elected as Vice-President by the Indian Medical Association, New Delhi branch and Hony. Assistant Secretary of IMA Headquarter. Dr. Vaidya was nominated as Member Convener of IMA Standing Committees on Trauma and Accident Medicine and on the LIC/Practitioners. Dr. Vaidya was the Secretary General for the First Afro-Asia Oceania Association of Anatomists held in August, 1988. Dr. V. Bijlani was the Chairman of the Scientific Committee, Dr. N.K. Mehra was Joint Secretary, Dr. G. Gopinath, Dr. A.K. Susheela, Dr. K. Kucheria, Dr. U. Sabherwal, Dr. S. Wadhwa, Dr. R. Kumar and Dr. R.D. Mehra chaired various sessions and were members of the various committees and presented papers in this conference. Dr. Vaidya was also Organising Secretary of the XXVII National Conference of Anatomical Society of India held on September 3-4, 1988 at A.I.I.M.S. Dr. V. Bijlani and Dr. G. Gopinath chaired scientific sessions in Indo-Soviet Symposium on Developmental Neurobiology and Neural Transplant, November 1988, sponsored by the USSR Academy of Sciences and INSA.

Visiting Scientists

Prof. Paul Terasaki, Director, UCLA Tissue Typing Lab., Los Angeles, U.S.A. delivered lecture on 'Factors influencing kidney graft survival', December 11, 1988 and held discussions with the staff of the HLA Laboratory.

Prof. Shahid Siddiqui from Toyohashi University of Technology delivered a lecture on 'Axonal guidance in mutants of C1 Elegans', October, 1988.

Dr. Ashutosh K Sharma, Department of Anatomy, Aberdeen, Scotland and Visiting Professor at Indiana Univ. Medical Centre, U.S.A. visited the department from 16-19th August, 1988 and delivered a lecture on 'Nerve abnormalities in human and animal models of diabetes: The effect of various therapies including pancreatic transplantation'.

Prof. Anita Hendrickson, Professor Biological Structure and Ophthalmology, University of Washington, Seattle, U.S.A. visited the department from September 25 to October 20, 1988. She had discussions with different faculty members and gave lectures on 'Development of GABAergic neurons in monkey visual cortex' and 'Identification of GABAergic neurons in monkey Retina'.

Dr. M.R. Das, Deputy Director of Cellular and Molecular Biology, Hyderabad visited the laboratory and gave a lecture on 'Molecular Biology of Cancer', March 1989.

Dr. D.N. Singh, Professor and Director, Division of Medical Genetics, Meharry Medical College, School of Medicine, Department of Pediatrics, Tennessee, delivered a lecture on 'Recent advances in Oncogenes causing neoplastic transformation of cells'.

USSR Academy delegates to the Indo-Soviet Symposium on Developmental Neurobiology and Neural Transplant, November, 1988.

President of the Yugoslavian Science Academy and

his team visited the laboratory, October 1988.

HOSPITAL SERVICES

HLA Laboratory

Transplantation

Regular HLA typing was done for patients requiring bone marrow and kidney transplantation as well as their donors. The patients have been referred from different hospitals in India. A total of 427 individuals have been HLA typed for the purpose during the year 1988-89.

<u>Category</u>	<u>Patients</u>	<u>Donors</u>	<u>Total</u>
Kidney	123	160	283
Bone Marrow	28	112	140
Keratoplasty	4	-	4
Total			427

HLA and Disease Associations:

<u>Disease</u>	<u>Patients</u>	<u>Association</u>
Ankylosing Spondylitis and related spondyloarthropathies.	164	B27
Rheumatoid Arthritis	39 Sporadic	DR4
RA/SSA 'Overlap' cases	10 families	
Systemic Lupus Erythematosus	12 35	B27/DR4 DR3
Rheumatic heart disease	120	DR

Insulin dependent diabetes mellitus	10 families	B21, DR3
Pulmonary tuberculosis	130 Sporadic 4 families	DR2
Autoimmune Thyroid Disease	26	B8, DR3
Miscellaneous	52	

Total	578	

Paternity Determination

Two cases of disputed paternity were referred to the laboratory and successfully resolved on HLA basis.

Cytogenetics Laboratory

Buccal smears - 537

Cytogenetic investigations:

Blood - 207

Bone Marrow - 7

Chorionic villi - 17

Amniotic fluid - 4

Biochemical investigations:

Maternal serum alpha feto protein - 1545

Total 2317

Fluorosis

Blood, Urine and Drinking water samples have been tested for fluoride. Total number of tests carried out in all the 3 fluid samples are:

106

A sensitivity early diagnostic test for Fluoride toxicity and fluorosis viz., SA/GAG test carried out:

18

124

Community Services & Education

Dr. A.K. Susheela

A training cum awareness cum update camp for Doctors, Public Health Engineers, Paramedical and Voluntary Health Workers on toxic effects of fluoride in drinking water and defluoridation have been held at 6 districts in the country.

- | | |
|-------------------------------------|-------------------|
| 1. Chanderpur District(Maharashtra) | 21-22 April, 1988 |
| 2. Periyar District (Tamil Nadu) | 18-19 June, 1988 |
| 3. Gulbarga District (Karnataka) | 8-9 July, 1988 |
| 4. Jaipur District (Rajasthan) | 25-26 Aug. 1988 |
| 5. Nagaur District (Rajasthan) | 10-11 Sept. 1988 |
| 6. Raichur District (Karnataka) | 3-4 Feb. 1989 |

During the year under review, a total of 300 doctors and 700 paramedical workers and 300 public health engineers have been trained in 6 districts.

Dr. A.K.Susheela gave an All India Radio Broadcast

on "Fluorosis" in Hindi; Public lecture on Fluoride Toxicity and Health Problems at Rajasthan University in December 1988; B.Sc.(Hons.) Human Biology Programme : Aims and Objectives and prospects of the Course - lecture delivered at Springdale School, New Delhi in December 1988 for the benefit of 10th,11th, 12th and parents.

Dr. G. Gopinath

Dr. G. Gopinath was nominated as a Member of the Executive of the A.I.I.M.S. Chapter of Society for Technology and National Development (STAND).

Contribution of a Popular article: Tandon, P.N. and Gopinath, G.: Neural Transplant. In: 'Shathayushi' (Deepali Special), Dwarika Sangamanekar Medical Foundation, Pune, 1988.

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Collaborative publications

8

Chapters in Books

1. Gopinath, G. :1) Neural control of motor activities.and 2) Neural transplantation - morphological consideration In: Lectures in Neurobiology. ds. Tandon, P.N., Bijlani, V. and Wadhwa, S. Neuroscience Centre & Department of Anatomy, AIIMS, New Delhi, 1988 p 87-99.
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of sex determination. Proc. DAE Symposium on Human Genetics, (Ed) Chauhan (PS) Ahmedabad 1988; 179-183.

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Books

1. Tandon, P.N., Bijlani, V. and Wadhwa, S. Lectures in Neurobiology. Published by Neurosciences Centre & Department of Anatomy, AIIMS, Rakino Press, New Delhi, 1988.
2. Wadhwa, S. and Sabherwal, U.: Tape Slide Programme and Workbook on "Mechanism of Walking", Department of Anatomy, AIIMS, 1988.
3. Sabherwal, U., Mehra, R. and Manhas, B.: Functional Anatomy of Hand. Video Programme for Undergraduate & Postgraduate Medical Students. Department of Anatomy, AIIMS, New Delhi.
4. Sabherwal, U.: Working manual for participants of national workshop "Effective use of learning resources in teaching of anatomical sciences", Department of Anatomy, AIIMS 1988.

Papers presented at scientific meetings 65

Papers accepted for publication 35

Chapter 6.2

BIOCHEMISTRY

FACULTY

Professor and Head	S.K. Sharma
Professor	A.Ramaiah
Additional Professors	L.M. Srivastava T.N.Chapekar D'Monte C.Das
Associate Professor	N. Singh
Assistant Professors	D.N. Rao N. Das K.D. Moudgil R.Ralhan S. Sinha K. Gupta

Dr. N. Srivastave Bora left the department on 24.6.1988 Dr. S. Sinha and Dr. K.Gupta joined on 12.5.1988 and 13.2.1989 respectively.

EDUCATION

Learning objectives are now being cyclostyled and given to the U.G. students. An attempt was made at integrating the course in Immunology at the preclinical phase to include teachers of pre, para and clinical departments. Practicals relating to recombinant DNA technology were introduced for B.Sc. (Hons) Phase III students. Additional lectures on toxicology, drug posisoning, renal failure, and electrolyte balance were included in the clinical chemistry course for B.Sc. (Hons) Phase II students.

Continuing Medical Education

The faculty participated in the following CME programmes.

Dr.S.K. Sharma.: "Monoclonal antibodies and identification of cell surface antigens" at National Institute of Communicable Diseases, Sept., 1988, "Energy metabolism in normal brain" at the second course in Neurobiology for postgraduates in Clinical Neurosciences at AIIMS, November, 1988, "Cellular basis of tolerance and dependence to opiates" at the Deptt. of Pharmacology, Feb. 1989. Dr. Sharma was invited to participate in UGC seminars on "Curriculum development in Biochemistry" held at Delhi University in February, 1989; As part of the 57th annual meeting of the Society of Biological Chemists (India) held at Delhi University in October 1988, Prof. Sharma organized a symposium on "Neurobiology" and presented a paper entitled "Ascorbate inhibits specific binding of etorphine and low Km GTPase in NG108-15 hybrid cells". At the same meeting Prof. A. Ramaiah organized a symposium on "Regulation of enzyme activity" and presented a paper entitled "Phosphorylation of Sedoheptulose 7-phosphate by phosphofructokinase from lactating mammary gland". Dr. Sharma delivered invited lectures on "Cell culture model to study the development of tolerance and dependence to opiates" at the Symposium on "Rational use of Psychotropic substances" held at AIIMS in Jan. 1989, on "Adenylate cyclase responses to opiates" at the "Indo-US Symposium on Molecular mechanisms involved in neuronal response to damage" held at NIMHANS, Bangalore, in Feb. 1989, on "Cellular basis of dependence to opiates" at the Indian Academy of Neurosciences meeting held at Chandigarh in March 1989.

Dr. A. Ramaiah gave a series of extension lectures on Bioenergetics, enzyme activity regulation, and recent work of his laboratory" at the Biochemistry department, Nagpur University, and lecture on "What is Biochemistry" at the Womens College in Nagpur in January 1989, invited to give a lecture on "Etiology of vitiligo" at the symposium on vitiligo at the Genetics

Institute, Hyderabad, in April 1988, and a plenary lecture on "Etiology of vitiligo" at the 17th meeting of the Indian Association of Dermatologists, venereologists and leprologists at Bombay in Jan. 1989.

Dr. L.M.Srivastava gave a lecture on "Complement system" at National Institute of Immunology, New Delhi in October 1988.

Dr. C.Das gave lectures on Reproductive Biology/Immunology at the National Institute of Immunology, New Delhi in September 1988.

Dr. Neeta Singh presented papers entitled "ADP-ribosylation and cancer" at the International conference on Biomembranes in health and disease held at Lucknow, in Nov. 1989. and on "Stimulation of Poly ADP-ribosylation by tumour promoter phorbol-12-myristate-13 acetate at the 57th Annual meeting of the Society of Biological Chemists, held at Delhi, in October 1988.

Dr. D.N.Rao delivered a talk on "Macrophage defect in leprosy and its modulation" at the symposium on Advances in Biochemistry and Biotechnology at Indian Institute of Science, Bangalore, in May, 1988, on "Chemical synthesis and immunological specificity of CS peptides of *P. falciparum* and *P. vivax* at the XV annual conference of Indian Immunological Society meeting held at Siliguri in November 1988; attended a workshop on development and handling of Molecular Probes in diagnosis of tropical disease held at Centre for Biotechnology, Anna University, March, 1989.

Dr. Nibhrity Das participated in workshops on the "Educational planning and examination" at Shimla in October 1988, and "Evaluation and assessment in undergraduate Medical Education" at AIIMS.

Dr. K.D. Moudgil presented a paper "Antibody response of leprosy and tuberculosis patients to antigens of *Mycobacterium w* at the XV annual conference of the Indian Immunology Society, held at Siliguri, in November, 1988; participated in the "Indo-French

colloquium on Recent Advances in Life Science and Vaccinology" held at the National Institute of Immunology, New Delhi, Feb. 1989.

Dr. Ralhan presented a paper entitled "Characterization of a putative glucocorticoid receptor binding sequence of mouse mammary tumor virus using an open reading frame vector" at the International Conference on Biomembranes in Health and Disease held at Lucknow in Novemebr, 1988, and "Effect of heat shock and glucocorticoids on mouse mammary tumor virus RNA and protein synthesis" at the 57th Annual meeting of Society of Biological Chemists India, held at Delhi in October, 1988. She participated in the symposium "Recent Advances in Technology and Treatment with Hyperthermia" organized by Mitronics and ODAM, France, held at Delhi in August 1988.

Mr. S.S.Malla, faculty member from Tribhuvan University, Kathmand Nepal, joined the department in August, 1988, for a period of one year to acquaint himself with the undergraduate and postgraduate teaching programmes and research activities of the department. A group of 5 students from the Saint-Louis, Technical School, Bordeaux, France joined the department in March 1989, for two weeks training in biochemical and immunological techniques. Two students from I.I.T., Kanpur, were trained in RIA/ELISA techniques and chemical synthesis of peptides by solid phase technique in the laboratories of Dr. C. Das and Dr. N.Rao.

RESEARCH

Research Completed

Detection of anti sporozoite antibodies using (NANP)₄ and (GDRADGQPA)₂ synthetic peptide antigens by enzyme immunoassay

The repeat sequence of CS peptides of P falciparum and P. vivax, made indigenously were tested to detect the presence of antisporozite antibodies in the sera of people of different age groups in ten villages of

Gaziabad district. An age dependent relationship in antibody titre, in accordance with parasitimea was observed. In addition about 200 serum samples each from the blood banks of neurosciences and general surgery were screened.

Growth and differentiation of mouse mammary glands in organ culture

An experimental model of mouse mammary gland organ culture with long term maintenance (about 6 weeks) has ben developed. This would facilitate in vitro studies on carcinogenesis using chemical carcinogens and those on the nature and exgent of hormonal involvement in this process. Possibility of long term organ culture of mouse mammary glands has been demonstrated perhaps for the first time. Salient observations on the studies have been reported in the earlier report.

Studies on human atrial natriuretic factor (Biochem, Med)

Research Continuing

C6 glioma as a model of cellular differentiation

Comparisons of glycolytic enzymes between rapidly proliferating and Bt cAMP induced differentiated glioma cells have been made². Rapidly proliferating cells had higher concentrations of glucose-6-phosphate, fructose-6-phosphate and fructose-1, 6-bisphosphate compared to morphologically differentiated cells. The specific activity and Vmax of hexokinase and phosphofructokinase enzymes were reduced on differentiation without any change in Km values, suggesting that these enzymes occupy special control positions and the rate of glycolysis is correlated with cellular proliferation of C6 glioma cells.

Biochemical characterization of human brain tumor antigens by monoclonal antibodies

Studies on the biochemical characterization of human brain tumor antigens is continuing. Monoclonal

antibody 6D₂ generated in our lab. against human glioblastoma² multiforme cell line was purified to homogeneity by affinity chromatography. By Ouchterlony this antibody was found to be IgG₁ subtype. During the year we have done the cross reactivity of 6D₂ with established cell lines. Five glioblastoma multiforme, 3 neuroblastoma, one medulloblastoma and one melanoma gave positive IIF. Faint reactivity was seen with one astrocytoma. There was no reactivity with normal fetal and adult human brain frozen sections by IIF and membranes by ELISA. We have also tested the reactivity of 6 D₂ on approximately 100 brain tumor biopsies obtained from the Neurosurgery O.T. at AIIMS. The biochemical characterization of the antigen of human glioblastoma multiforme is in progress.

Studies on the effect of ascorbic acid on morphine addiction

Our earlier work on the efficacy of ascorbic acid in the prevention of development and tolerance to opiates is continuing. Monkeys were addicted with morphine (6 mg/Kg B.W., twice in 24 hr) with and without ascorbic acid (0.5 g/KG B.W.) for a period of two months. Withdrawal was precipitated by the injection of Naloxone (0.5 mg/KG B.W.). On withdrawal, the morphine addicted animals showed mild effects (vomiting and loss of appetite) which were suppressed when morphine and ascorbate were injected together. However, the duration of morphine injection needs to be extended to 3 months to observe severe withdrawal effects. Ascorbate treated monkeys had hemoglobin values of $7 \text{ g} \pm 0.5$, whereas the control hemoglobin values were 10.5 ± 0.6 . After discontinuation of ascorbate treatment the hemoglobin levels returned to normal in 3 weeks. Liver and kidney function tests were normal with the exception of CPK which was significantly higher in morphine treated monkeys.

Role of pH in the regulation of melanin synthesis

The work on the regulation of tyrosinase is continuing. Our hypothesis that melanin synthesis occurs in the melanosomes at an acidic pH has added

possibility by the observation that a pure melanosomal preparation was shown to have proton translocating ATPase. That melanocyte stimulating hormone added to the culture medium of melanoma cells decreases the pH of the melanosomes as observed by others indicates perhaps that melanin synthesis occurs under acidic conditions.

Abnormalities of melanocytes from vitiligo subjects

Results indicate that growth factors (PMR-GF) appear to extend the life span of melanocytes from vitiligo subjects appear to be terminally differentiated right in the first passage indicating that they might have been deprived of natural growth factors in vivo. The studies are extended.

Effect of vitamin B6 deficiency on complement proteins and immunity

A significant decrease in the in vitro hemolytic activity of complement (CH_{50}) and C3 levels was found in the Vit B6 deficient rats. The study indicates that in addition to the impaired humoral and cell mediated immunity in pyridoxine deficiency, hypocomplementaemia may also contribute to the immune dysfunction. Pyridoxine deficiency may contribute to and aggravate the hypocomplementaemia seen in cases of protein energy malnutrition.

Matched assay reagents and quality control programme for radioimmunoassay of reproductive hormones

Development and distribution of well characterized, specific antisera against estradiol, progesterone and testosterone is being continued. The programme has not only made the country self-sufficient in these reagents but has also led to the savings of more than Rs. 50 lakhs of foreign exchange. Further, the parameters for development of RIA kits have been worked out and their stability at different temperatures, specially the high temperature prevailing in the northern part of the country during the summer months has also been tested. These kits have been found

to be quite stable at these temperatures. Efforts are in progress to make the kits in greater numbers and supply them to the Regional Medical Colleges and Institutions for better patient care.

Effect of tumour promoters on poly ADP-ribosylation

Poly ADP-ribose is homopolymer synthesised from NAD by a chromatin bound enzyme poly ADP-ribose transferase which is ubiquitously distributed in almost all types of eukaryotic cells. The importance of poly ADP-ribosylation lies in its role in several aspects of chromatin structure and function i.e. its involvement in DNA replication, DNA repair, cell differentiation and malignant transformation. We conducted a study on Poly ADP-ribosylation in lymphocytes of leukemia subjects (AML, ALL) before chemotherapy. We found an increase in their polymer levels and a good correlation between decreased NAD levels and increased poly ADP-ribose transferase activity. Similar observations were seen in solid ovarian tumours. The high activity of this enzyme may represent an important area of investigation in cancer diagnostics and therapeutic interventions, as inhibitors of poly ADP-ribose transferase augment the effect of anticancer drugs like bleomycin. The effect of different tumour promoters on poly ADP-ribosylation in normal lymphocytes as well as those obtained from different leukemia subjects is being investigated.

Tumour promoters - mechanism of promotion

The mechanism of action of both stage I and stage II tumour promoters like PMA, benzoyl peroxide, mezerin, asbestos fibres etc. on some cell lines like NIH 3T3, HeP2, HeLa, L1210 and A 431 is being evaluated. The effect of these tumour promoters on poly ADP-ribosylation, protein kinase C, calcium ions and involvement of active oxygen species is being evaluated. Initial studies show an increase in poly ADP-ribosylation by different tumour promoters to different extent and at different time intervals. The effect appears to be mediated via active oxygen species. The effect of various antipromoters and antioxidants is also being evaluated.

Blood stage peptides

In continuation of the search for new antigens in *P. falciparum* parasite, besides CS protein, one of the extraerythrocytic blood stage protein called Ring infected erythrocytic stage antigen (RESA) was studied for B and T-cell sites using Chou Frasier computer model. We have predicted two regions, one of 11 amino acids and the other one of nine amino acid in length. These were chemically synthesized by solid phase peptide technique. The crude peptides were purified by gel and ion exchange chromatography. Both the peptides were found to be physicochemically pure by HPLC and amino acid composition. These were currently under investigation for B and T cell property.

Serum tuftsin levels by RIA

Results with macrophages derived from lepromatous patients showed refractiveness towards in vitro immune modulation using tuftsin, led us to study the serum tuftsin levels in these people. The tetra peptide was chemically modified to make it antigenic and anti-peptide antibodies were generated in rabbits after coupling with an immunogenic carrier. Tuftsin was isolated from the sera of leprosy individuals by trypsinization followed by differential partition chromatography. Currently we are in the process of developing RIA for the same.

The above peptides of *P. falciparum* and *P. vivax* antigens are currently under study for CD and 2 DNMR spectroscopy to find out local secondary structures in these molecules.

Production of monoclonal antibodies against *M. tuberculosis* (H37RV)

Work is in progress to develop mouse hybrid cell clones secreting monoclonal antibodies specific to *M. tuberculosis* (H₃₇R) as well as those reactive with determinants common to other mycobacteria. The mycobacterial antigens recognised by such monoclonals

will be characterized. The monoclonals will be tested for their utility in immunodiagnosis of pulmonary tuberculosis and tubercular meningitis.

New Research

1. Treatment of vitiligo by local application of forskolin and basic fibroblast growth factor entrapped in liposomes.
2. Oncogene response to hormonal stimulation in cell proliferation.
3. In vitro differentiation of trophoblasts and regulation of chorionic gonadotropin secretion from human placenta.
4. Development of quantitative ELISA for progesterone.
5. Studies on some biochemical and clinical aspects of atrial natriuretic peptides.
6. Isolation and identification of heat shock induced proteins of human neoplastic tissues for potential use in diagnosis of neoplasia.
7. C-myc and the transformed phenotype of liver cells.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. K.D.Moudgil was awarded Dr.C. Sita Devi award of the Association of Clinical Biochemists of India (ACBI) for 1988.

Significant Events

Prof. Sharma gave a talk on "Development and differentiation of nervous system using monoclonal

antibodies" at the Lab. of Biochemical Genetics, NIH, USA, in Oct. 1988; chaired the session on applications of liposomes at the "Second National symposium and workshop on liposome research" held at Delhi University in Feb. 1989, and the session on "Neurotransmitters in Health and Disease" held at the Indian Academy of Neurosciences meeting at Chandigarh in March 1989; appointed a Member of National Committee for International Union of Biochemistry. She is member of editorial boards of J. of Biosciences and Molecular and Cellular Biochemistry; was appointed as one of the secretaries of the National organizing committee of the 16 th International congress of Biochemistry to be held at Delhi in sept 1994.

Dr. A. Ramaiah continues to be the member of Projects Advisory Committee of ICMR on Bhopal gas tragedy.

Dr. Brian D'Monte is coordinating the development of a department of Medical Education Technology in collaboration with the Institute of Technology at Dundee, Scotland.

Dr. T.N. Chapekar is appointed a member of editorial board of the Journal Cell Biology and Toxicology.

Dr. L.M. Srivastava is a member of the Education Committee of the International Union of Immunological Society (IUIS). He is member of editorial board of J. of Recent Advances in Applied Sciences and J. of Biochemical and Chemical Research, India.

Dr. C. Das has been nominated a member of the Women in Endocrinology (WE) USA and founder member/adviser of the Indian Society for the study of reproduction and fertility. She continued to be the executive member of the Indian Immunology Society and was invited by the ICMR to participate in ;the joint WHO-ICMR Task force meeting held at Bombay in Nov. 1988.

Dr. K.D. Moudgil presented a paper entitled "Study of anti-PGL-I antibody level as an index of bacterial load in leprosy patients" at the 13th International Leprosy Congress held at the Hague, the Netherlands, in September 1988.

Visiting Scientists

Prof. K. Subba Rao, University of Hyderabad. "DNA repair-Aging and Neuron" Feb.1989. Dr. R. Khokha, Univ. of Western Ontario, Canada. "Regulation of collagenase inhibitor (TIMP) by antisense expression causes Swiss 3T3 cells to become tumorigenic and metastatic". Jan. 1989. Prof. D.P. Burma, Banaras Hindu University, Varanasi. "Biochemistry in Medical Education", December 1988. Dr. G. Krishna, lab. of Chemical Pharmacology, NIH, USA. "MPTP induced Parkinsons disease" and " The role of cGMP in retinal function and disease", November, 1988. Prof. Werner Hofer, Konstanz University, Konstanz, W. Germany. "Energy production and contraction in isolated muscle", Oct. 1988. Dr. S. Chatterjee, Johns Hopkins Universty, Baltimore, USA. "Regulation of glalactosyl transferase activity by the LDL receptor in human renal cells", October 1988.

HOSPITAL SERVICES

The department continued to provide services for specialized biochemical estimations for the patient care and research projects of the Cardiothoracic Centre.

The following specialized biochemical tests were performed.

Parameters	Number of investigations
1.	Lipid profile
	Total cholesterol
	2053
	Triglyceride
	2095
	LDL-cholesterol
	2053
	VLDL-Cholesterol
	2053
	HDL-Cholesterol
	2053

2.	Lipoprotein electrophoretic pattern	500
3.	Immunological Parameters	
	ASLO	987
	CRP	987
4.	Metanephrine	80
5.	Serum enzyme	
	CPK (CK)	1898
	CK-MB isoenzyme	144
	LDH-Total	1809
	Total	<hr/> 16712 <hr/>

Community Services & Education

Dr. N. Singh, gave a lecture on "Environmental Carcinogenesis" at Kirorimal College, Delhi University in January, 1989.

PUBLICATIONS

1. Agarwal, A. and Moudgil, K.D. Immunodiagnosis of tuberculosis : problems, progress and future projections. Ind. J. Tub.,1989, 36: 3-14.
2. Bhatia ,Ralhan, R. and Sharma S. K. Ascorbate inhibits specific binding of etrophine and low Km GTPase in NG 108-15 hybrid cells. Ind. J. Biochem. Biophys,1988, 25: 699-702.
3. Devi, C.C., Tripathi, R.K. and Ramaiah, A. Citrate activates tyrosinase from B-16 murine melanoma and human skin. Pigment Cell Research 1989, 2: 117-122.
4. Devi, C.C., Tripathi, R.K. and Ramaiah, A. pH-dependent interconvertible forms of mushroom-tyrosinase with different kinetic properties. Pigment Cell Research 1989, 2: 8-13.

5. Gupta, P. and Gupta, K. Broken tablets : does the sum of the parts equal the whole. Am. J. Hosp. Pharmacy, 1988, , , 45: 1498.
6. Moudgil, K.D., Singh, G. and Talwar, G.P. Detection of lepromatous leprosy patients shedding M. leprae in nasal droppings by enzyme immunoassay method based on PGL-I and Mycobacterium W antigens. Ind. J. Lepr., 1988, 60 : 549-553.
7. Moudgil, K.D. and Irshad, M. Global overview of the prevalence of hepatitis B virus markers (HBs AG and anti-HBs) in leprosy patients. Tropical Gastroenterology, 1988, 9 : 184-190.
8. Moudgil, K.D. Enzyme immunoassay and its applications in medicine. J. Appl. Med, 1988, 14 : 807-811.
9. Narang, R., Moudgil, K.D. and Moudgil, A. Atrial natriuretic factor. J. Assoc. Phys. India, 1988, 36 : 657-659.
10. Rao, D.N. Tuftsin : Effects on the phagocytic and microbicidal function of macrophages in leprosy. J. Cellular Biochem, 1989, 13E (Suppl) 108. (Abstr)
11. Ramaiah, A., Mojomdar, M. and Amarnath, V.M. Vitiligo in the S.S.K. community of Bangalore (A preliminary report). Indian J. Dermatol. Venereol. Leprol, 1988, 54 : 251-254.
12. Sinha, S., Webber, C., Marshall, C.P., Knowles, M.A., Proctor, A., Ba - N.C. and Neal, G.E. Activation of rat oncogene in aflatoxin induced rat liver carcinogenesis. Proc. Natl. Acad. Sci., USA, 1988, 85 : 3673-3677.

13. Sharma, S.K., Kochhar, K.S., Sharma, E., Thapliyal, R.M. and Singh U.N. Two specific antigens in glioblastoma multiforme identified by monoclonal antibodies. Ind. J. Biochem. Biophys, 1988, 25 : 185-192.

Chapters in Books

1. Sharma, K. Enkephalins and endorphins. In : Lectures in neurobiology (eds) Tandon, P.N. Bijlani, V. and Wadhwa, S. Rakmo Press Ltd., Delhi 1988 p74-78..
2. Das, C. and Sekhri, S.K. Induction of bioeffective anti LHRH response in monkeys macaca radiata with permissive adjuvants. Proceedings of the international conference on comparative reproduction in mammals and man. (eds) Eby, R.M. ISBN. 1988, p174-180.
3. Srivastava, L.M. Biochemical markers in acute myocardial infarction. In National Symposium and Workshop on Nuclear Cardiology, (eds) Gopinath, P.G. and Malhotra. A. RNL printers 1988, p 32-35.

Collaborative publications	3
Papers presented at scientific meetings	9
Papers accepted for publications	9

Chapter 6.3

BIOPHYSICS

FACULTY

Professor & Head	T. P. Singh
Additional Professors	V.Kotheekar V.K.Sud
Associate Professors	G.Subba Rao K.B.Ahluwalia
Assistant Professor	K.Dalal

Dr. V.K.Sud is in USA on NASA fellowship.

EDUCATION

Continuing Medical Education

The following lectures were organised as a part of continuing medical education.

Dr. M. Fahim, Department of Physiology, Patel Chest Institute, "Atrial receptors and their functions", 9.4.88.

Dr.S. Venkatasubramanian, Central Salt and Marine Chemical Research Institute, Bhavanagar, Gujarat, "Molecular structures Sections-Organic and inorganics", 17.8.88.

Dr. B.S. Sudhinra, Department of Biophysics, AIIMS, "Molecular modelling approach for receptor identification and drug design", 20.8.88.

Prof. M. Amin, Department of Biosciences, Jamia Milia Islamia, New Delhi, "Energy transduction by actomycin-AT-Pase-creatine kinase coupled enzyme system", 21.1.89.

Professor T.P. Singh gave an invited lecture on "Symmetry in Crystals" in the International Seminar and Workshop on Symmetry held in Bombay October 1988; delivered an invited talk on "Designing of peptide structures by introducing dehydro-residues" in the National Seminar on crystallography held in BHU Varanasi, December 1988; gave an invited lecture on "Designing of the structures of peptides and proteins using alpha-beta dehydro-residues" in the XIVth All India Symposium of Indian Biophysical Society held in BHU, March 1989.

Dr.V.Kothekar was invited to deliver a talk on, "Use of lasers for the study of dynamic moments in membrane molecule and their interactions" workshop on lasers in chemical and biological sciences, I.I.T, New Delhi, December, 1988.

Dr. K.B. Ahluwalia delivered two invited lectures on i) "Ultrastructural features of potentially invasive cells" at North Eastern Hill University Shillong, October and ii). "Laser Doppler velocimetry of cancer cells in correlation with ultrastructure by electron microscopy." December 1988.

RESEARCH

Research Completed

Structure analysis of bacterial enzyme DHPS and designing of its inhibitors

The enzyme Dihydropteroate Synthase (DHPS) catalyses the formation of dihydrofolic acid from para amino benzoic acid. Sulfonamides inhibit the DHPS enzyme competitively and cause bacteriostasis. It is a key enzyme in the biochemical multistep pathway of folic acid synthesis. It has been found that a

substitution at sulfonilamido site leads to no change in the molecular dimensions of sulfonamides but leads to the significant conformational changes thus providing a key site for designing more potent antibacterial agents based on conformation. The therapeutic data on sulfonamides have clearly indicated the differences in their efficacies. The final result of the project has provided a series of potent sulfonamides designed according to their conformations.

Theoretical study of dynamic flexibility in DNA structure and its recognition by proteins and drugs

One of the most fundamental problem in molecular genetics is the control of transcription. This relies on the inherent recognition between regulatory proteins and DNA molecule. There are several other molecules such as carcinogens and drugs that modify transcriptional regulation. The replication process also can be regulated specifically by binding of drugs at a particular site. The main objective of the project was to understand the mechanism of inherent recognition between DNA- protein and DNA-drugs. The use was made of theoretical computer modelling procedure involving energy minimization criterion. The necessary computer software for this purpose (for simulation, docking, optimization, energetics, graphics etc.) was developed by us. We studied the mechanism of binding of netopsin, distamycin, analog of distamycin, dye-Hoechst 33258, steroid dexamethasone, deacyl cortivazol and 21 mesylate of glucocorticoid with different DNA sequences. We studied interactions of helical fragments from lac repressor and Cro protein, and twisted fragment from lac repressor with DNA. The nature of forces responsible for recognition was analysed. We studied the role of static and dynamic structural changes in the DNA molecule on recognition. These structural changes have been observed recently and it is believed that they do effect biological function of DNA.

Research Continuing

The designing of the structures of peptides and proteins by using alpha,beta -dehydro-residues

The alpha,beta-dehydro amino acids have been found to occur in peptides of microbial origin and in some proteins. The peptides containing alpha,beta- dehydro-residues are synthesized in ribosome via precursor protein followed by enzymatic modifications. A series of peptides have been designed using alpha,beta-dehydro -residues and definite secondary structures have been obtained. A dehydro -residue containing peptide always forms a beta-turn-II conformation while a peptide with consecutive dehydro-residues results in an extended chain conformation . If a dehydro-residue repeats in a primary sequence with one or two saturated residues in between , the resultant structure is a helix. The dehydro-residue-Pro sequences generate collagen-like structures while Pro-dehydro-residue sequences result in beta-turn-II conformation. Thus specific structures can be obtained by introducing alpha,beta- dehydro -residues in sequence of amino acids.

The specific inhibitors of enzymes trypsin and proteinase- K have been synthesized and found very potent. Further work in the project continues.

Preparation and structural studies on the bifunctional inhibitors of trypsin and alpha-amylase

Protein inhibitor of proteinases are ubiquitous . Their gross physiological function is the prevention of unwanted proteolysis. This new family of bifunctional inhibitors is interesting because they inhibit two unrelated enzymes. This bifunctional protein inhibitor has been prepared from ragi. It has 122 amino acids in the sequence with molecular weight of about 14,300 Daltons. The biochemical preliminary observations suggest that its function shows a cooperativity. The preliminary conformational analysis indicates 4-beta pleated sheets and 5 short alpha-helices. It is known that Lys residue is located at the

alpha -amylase binding site while Arg residue is found at the trypsin binding site. It has been possible to physically locate these sites of binding in the protein inhibitor. It appears that if trypsin binds first, the second site which is meant for alpha -amylase gets converted to the trypsin like binding site conformationally. It therefore shows an allosteric effect which is responsible for the cooperativity. The same effects are observed when alpha-amylase binds to the inhibitor first. Further work on this double headed protein molecule is in progress.

Biophysical studies on the interaction of ionophores and drugs changing permeability properties of the membrane to Ca^{++} ions with membranes, membrane components and membrane models

The drugs that produce their effect by changing intracellular concentration of ions follow different physiological pathway of action. The plasma membrane plays the key role in regulating activities of such drugs. These drugs may interact directly with the channel proteins or bind to lipid part of the membrane and destabilise it. Our main objective in the present project was to study interaction of local anesthetics and Ca^{++} mediators with the lipid part of the membrane. We continued our study on interaction of nifedipine, verapamil, PGF_2 bupivacaine and lignocaine with lipid vesicles (prepared from DPPC and DMPC). We also studied conformational flexibility of these drugs and their binding to DPPC using theoretical modelling technique.

Electron microscopic studies on the state of differentiation and malignancy in human cells

Oral leukoplakias, squamous cell carcinomas and nodal metastasis in oral cancer, breast tumors and acute lymphocytic leukemia are being investigated. Prominent differentiation markers are scored for understanding progression and invasive behaviour of a malignant lesion in correlation with histology and clinical findings.

Design and deveopment of frequency transposition type of hearing aid

The congenital type of hearing impaired persons are found to respond to a sound of frequency upto 500Hz. But the speech frequency is upto 8KHz (stereo-response is upto 20KHz). The problem therefore, stands to convert the speech frequency down so as to be accommodated to frequency upto 500 Hz, and to amplify it to a suitable level. Electronic circuits have been developed to convert a frequency upto 3 KHz down to 500Hz (i.e., a frequency division of $1/6$ times). This method utilizes the principle of the phenomenon of subharmonic synchronization in oscillators. The scheme is to frequency modulate a carrier by the speech frequency and to synchronise a local oscillator, having a free running frequency of one sixth of the carrier frequency. Then the output of the synchronised oscillator is frequency demodulated and finally the demodulated output is amplified to a suitable level. Result has been obtained for a single tone speech frequency. Investigation is being continued for having a division of 9 times of the speech frequency.

Effects of electromagnetic waves on the ultrastructure of cells

The tissues from the experimental mice have been exposed to a particular type of electromagnetic waves having a wide variation of frequency and different duration of time of exposures. The exposed cells as well as the normal ones have been processed and analysed with the help of electron microscope. The exposed cells are found to have characteristics different from the unexposed cells . However, more experiments are being continued to conclude the results.

Investigations on oral preneoplastic lesions, squamous cell carcinomas and cervical node metastasis (Biophy, Otorhino, Path)

Studies on trabecular meshwork in open angle glaucoma (Biophy., R.P.C.)

Power spectrum analysis of orthogonal lead ECG in patients with ventricular tachyarrhythmias (Biophy, CTC.)

Mathematical modelling of insulin kinetics (Biophys, Med.)

New Research

1. Conformational analysis of oligopeptides containing dehydro-residues.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Professor T. P. Singh has been appointed the member-secretary of the Indian National Science Academy, National Committee on Biophysics for International Union of Pure and Applied Biophysics (IUPAB).

Dr. K. Dalal has been awarded membership of Madras Institute of Magnetobiology.

Significant Events

Department of Science and Technology has sanctioned a National Facility of 4-circle automatic single crystal X-ray diffractometer to the department under Professor T.P. Singh. He has been elected Vice President of the Indian Biophysical Society and received an equipment award of an x-ray diffraction system from Federal Republic of Germany.

Dr G Subba Rao was invited to chair a session at the satellite symposium of the 13th international diabetes Federation Congress on 'Computers and quantitative approaches to diabetes' held at Sydney, Australia.

Dr.K.B Ahluwalia was invited to chair a session in the XIth National Conference on electron microscopy

at Shillong, Oct,1988: and has been awarded membership, panel of translators for foreign languages (German) at Indian National Scientific Documentation Centre.

Dr. K. Dalal participated in the first intensive workshop on Basic Neurosciences, held in Chulalongkorn University, Bangkok, October / November 1988.

Visiting Scientists

Dr. K.K. Kannan, Neutron Physics Division, B.A.R.C., Bombay, "Protein-Drug Interactions", 13.10.88. Dr. P.K. Punnuswamy, Department of Physics, Bharati Darshan University, Trichi, "Protein folding", 21.2.89. Dr Kailash Narayan Joshi, Peter Mac callum cancer Institute, Australia, "(1) Survival curves, (II) Dose, volume and fractionation, (iii) Altered fractionation in clinical radiotherapy' 27.10.88. Professor P.chandra, Director, Laboratory of Molecular Biology, Frankurt Medical School, West Germany, "Molecular basis of aids virus infection', 29.12.88. Dr. Khalid Moidu, Department of Medical informatics, Linkoping University, Sweden, "Computers and teaching of diagnostic decision making", 30.1.89. Prof. Cedric Hassell, Wariwick University, U.K., "Drug design" 13.3.1989.

HOSPITAL SERVICES

HPMX-21, A-600 computers and PC-AT (with 3 terminals) are available in the department. These are primarily used for activities such as, preparation of pay bills, allotment of houses and maintenance of housing activities.

During the year it included its activities in following areas : Record of stores:

Daily recordings of drug stores, receipts, stock position and checking of drugs were maintained.

Academic activites:

Computerised management of issuing roll numbers, allocation of examination centres and lists of candidates appearing in MBBS entrance examination was maintained.

PUBLICATIONS

1. Ahluwalia, K. B. Ultrastructural features that relate to tumor cell behaviour in human breast carcinomas. J. Submicroscop. Cytology. 1989; 21:9-14.
2. Kaul P., Kothekar, V. Dynamic Fluorescence polarization study on lipid mobility in phospholipid vescicles. Biosciences, 1988; 13; 359-365.
3. Kothekar, V., Computer aided molecular model building with energy and strain inimization. J. Phys. Edu.1988; 5:47-57.
4. Kothekar, V., Kotwal A, Chandrasekhar, B. and Mrigank. Major groove recognition of DNA-Base sequelnces by regulatory proteins and drugs.Theochem, 1988; 179: 109-119.
5. Kothekar, V., Mrigank, Kotwal, A, Chandrasekhar, B., On possible mode of regulation of DNA transcsription by steroid hormone glucocorticoid.Int. J. Quant. Chem. 1988; 15: 167-178.
6. Narula, P.,Patel H.C., Singh T.P. and Chauhan V.S. Synthesis, Crystal Structure and Molecular Conformation of N-BOC-L-Phe-dehydro-Leu-L-Val-OCH₃. Biopolymers. 1989; 28:468-478

7. Narula, P., Patel H.C., Singh. T.P., Chauhan. V.S. and Sharma A.K. Crystal Structure and Molecular Conformation of N-BOC-L-Pro-dehydro-Leu-OCH₃. Biopolymers. 1988; 27:1595-1606.
8. Patel H.C., Singh. T.P., Chauhan V.S. and Kaur P. Synthesis, Crystal Structure and Molecular Conformation of a peptide N-BOC-L-Pro-Dehydro-Phe-L-Gly-OH. Biopolymers. 1989; 28:928-942
9. Singh, T.P., Narula P., Chauhan V.S. and Kaur P. Crystal Structure and Molecular Conformation of the Peptide N-BOC-L-Gly-Dehydro-Phe-NHCH₃. Biopolymers. 1989; 28:234-246.
10. Singh T.P., Narula P., Chauhan V.S. and Sharma A.K. Structure of N-BOC-L-Pro-dehydro-Leu-NHCH₃. Int. J. Peptide Protein Res. 1988; 29:1268-1279.
11. Singh T.P. and Chauhan V.S. Possible Use of alpha,beta-Dehydro amino acids in the Design of Peptides & Proteins. Ind. J. Chem. 1988; 27:877-880.
12. Sudhindra B.S. Drug-Receptor interactions: A Molecular View. -Physicians Update. 1988; 1:130-133.
13. Sudhindra, B.S. Drug Design: Fact or Fantasy? Physicians Update 1988; 1:208.
14. Tiku, P., Kotheekar, V. Theoretical study on the specificity and molecular mechanism of action of calcium ion mediators. Current Science, 1988; 57; 1049-1058.
15. Tiku, P., Kotheekar V. fluorescence spectroscopic studies on the interaction of nifedipine, verapamil and 15-S-15 Me-PGF₂. Current Science, 1988; 57; 934-938.

16. Trikha, J., Patel, H.C. and Singh T.P. Crystal Structure of a 1:1 Complex between N-BOC-L-Pro-L-Val-OCH₃(I) and N-Boc-L-Pro-C beta-methylated-L-Val-OCH₃(II),. Acta Cryst. 1989; C45:859-868.

Collaborative publications 2

Chapter in Books

1. Bajaj, J.S. & Subba Rao, G. Malnutrition related diabetes mellitus .1988. World book of diabetes in practice vol.3., krall, L.P.(ed.), Elsevier, Amsterdam, Oxford, p-24-31

Papers presented at scientific meetings 9

Papers accepted for publication 2

Chapter 6.4

BIOSTATISTICS

FACULTY

Professor and Head

K.Ramachandran

Additional Professor

K.R.Sundaram

EDUCATION

Paraclinical

A combined course in Bio-statistics extending over 50 hours of theory and classroom practical exercises has been started for the students of B.Sc.(hons) Human Biology and B.Sc.(hons) Speech and Hearing.

Continuing Medical Education

Prof.K.Ramachandran was a member of the faculty/resource person in Workshop on Traditional Medicine and Immunology, under the auspices of Technology Mission, office of Advisor to the Prime Minister, at Ahmedabad hosted by the Gujrat Ayurved University, Jamnagar September 1988.; Indo-US Workshop on Longitudinal Study Methodology at The National Institute of Health and Family Welfare, New Delhi December 1988.; and Indo-US Workshop on Perinatal Determinants of Child Survival at the I.C.M.R. headquarters, New Delhi February 1989.

Shri K.R.Sundaram, participated in Workshop on "Peri-natal, Neo-natal and Infant Mortality data collection -definition and analysis" conducted by The Department of Paediatrics, A.I.I.M.S., in September

1988.; Workshop on "Longitudinal Study Methodology" at The National Institute of Health and Family Welfare, New Delhi from December-1988.; Seminar on "Individual and Society" organised by The Max - Mualliar Bhawan in New Delhi in December 1988 and Seminar on "Alcohol Abuse-Problems and Policies" organised by The Department of Psychiatry, A.I.I.M.S. and Sunita Devi Singhania Hospital and Medical Research Centre, Bombay, in Delhi in November 1988.

Prof. K. Ramachandran gave two invited lectures on 'Statistical Methods in Epidemiology' to the faculty and post-graduate students of the Department of Cardiology, A.I.I.M.S..

Shri K. R. Sundaram, gave two lectures "Kaplan-Meier Life Table Analysis" to the post-graduate students of The Department of Gastro-enterology, A.I.I.M.S. and "Research Planning" to the post-graduate students and faculty of The Department of Cardiology, A.I.I.M.S.

RESEARCH

Research Completed

A Randomised controlled study of propranolol versus endoscopic sclerotherapy (EST) in poor risk cirrhotic patients (Biostat, G.E.)

Research Continuing

Feasibility study for development of a module for primary and secondary prevention of hearing impairment in rural areas (Biostat, Otorhino)

Study of post-operative pulmonary dysfunctions (Anaest, Biostat)

A study of the physical growth, skeletal maturity and psychological assessment at pre-adolescence and adolescence in relation to the nutritional status in urban slum localities of Delhi (Biost, Pediat)

A study of mal-occlusion and associated factors among Delhi children (Biost, Dent. Surg)

Study of craniosinostosis in North India: clinical, genetic, radiological, psychological and surgical aspects in children (Biost, Ped. Surg)

The development of a neuropsychological battery for use on Hindi knowing patients (Biostat, Psychiat)

Prospective study of neurosurgery infection (Biostat, NSC)

Survey of nutritional status of pre-school children in the rural area of Ballabgarh (Biostat, Com. Med.)

To study the effect of regular intervention against ascariasis and giardiasis and growth in children aged 1 to 5 years in a rural areas (Biostat, Com. Med.)

A randomised controlled study of propranolol versus endoscopic sclerotherapy (EST) in poor risk cirrhotic patients (Biostat, GE)

Eradication of iodine deficiency disorders and assessment of its impact on human development in tribal areas of Andhra Pradesh (Biostat, Com. Med., Endocrin)

Effect of iron fortified common salt on haemoglobin concentration in a population consuming wheat-based staple diet (Biostat, Com. Med.)

Epidemiology of coronary heart disease (Biostat, CTC)

New Research

1. Prevention and managemant of mental handicap in under privileged communities.
2. Incidence of diarrhoeal diseases in under five children- its association with nutritional status and effect of health education on incidence of diarrhoea.

AWARDS AND EVENTS

Distinctions, Awards, Honour

Professor K.Ramachandran was nominated as a Member of the Academic Committee of The National Institute of Mental Health and Neurosciences, Bangalore.; Member of The Scientific Advisory Committee of The Indian Institute of Health Management Research, Jaipur.; Member, Technical Advisory Panel for The National Programme for Control of Blindness under the aegis of The DGHS, Government of India and Member of The Editorial Board of the "Journal of Health and Population-Perspectives and Issues" of The National Institute of Health and Family Welfare, New Delhi.

Continued as Editor of The Indian Journal of Community Medicine, published by The Indian Association of Preventive and Social Medicine.

Shri Sundaram is Associate Editor of the "Indian Journal of Paediatrics" and a nominated member of The Editorial Board of "Indian Paediatrics".

Significant Events

Professor K.Ramachandran has been requested to provide statistical consultancy services to the Technology Mission in Health with reference to selected research projects in indigenous systems of medicine.; nominated as Statistical Expert to the Central Crisis Group (CCG) for chemical disasters by the Ministry of Environment and Forests, Government of India.; Member of The Scientific Advisory Committee of The Bhopal Gas Disaster Research Centre, Bhopal of The I.C.M.R.; Member of The Scientific Advisory Committee of National Nutrition Monitoring Bureau of The I.C.M.R.; Member of The I.C.M.R.-W.H.O. Project Advisory Committee on Control of Oral Cancer in India.; Member Scientific Advisory Group of The I.C.M.R. on Coronary Heart Disease.

Shri K.R.Sundaram, continued to serve as a member of a Project Review Committee of the ICMR.; as a resource person for the survey and evaluation of Blindness Control activities in India under the Dr.Rajendra Prasad Centre for Opthelmic Sciences, AIIMS, New Delhi.

Community Services & Education

Professor K.Ramachandran helped as statistical consultant to Prof.N.Gopinath, Emeritus Prof. of Cardiothoracic Surgery to complete a large scale community survey of Coronary Heart Disease and Hypertension in urban Delhi.; helped as a member of an expert advisory group with Prof.P.V.Sukhatme at The Maharashtra Association For Cultivation of Science, Pune, complete a three year study on "Improving Living Condition in villages"with particular reference to health habits and behaviour.; helped in the design of Immuno-prophylaxis trials of ICRC anti leprosy vaccine in Maharashtra undertaken by The Cancer Research Centre, Bombay.; The National Institute of Immunology ,New Delhi in designing the Immuno-therapeutic and Immuno-prophylactic trials of Mycobacterium W vaccine in a district of Uttar Pradesh and Foundation For Research in Community Health,Bombay, in designing a village based research project on "Health education for better utilisation of health facilities" in a group of villages near Pune.

Shri K.R.Sundaram participated as a collaborator in the Urban Health Centre in Malaviya Nagar carried out by the Centre For Community Medicine, AIIMS.

Collaborative publications

8

Chapters in Books

1. Sundaram K.R., Mohan D., and Rustagi P.K. A multivariate approach in the study of alcohol use in children in English medium schools in Delhi. In Statistics in Medicine, ED,Krishnan T., Himalaya publishing House, Bombay-1988 P. 131-138.

2. Sundaram K.R., Kailash S., Kaul K.K., Ahuja R.K., and Ramachandran K. Estimation of median values applying simple mathematical methods as compared to maximum likelihood methods. In Statistics in Medicine, ED, Krishnan T. Himalaya publishing House, Bombay. 1988, P. 244-253.

Papers presented in scientific meetings 3

Papers accepted for publication 6

Chapter 6.5

PHYSIOLOGY

FACULTY

Professor and Head	S.K.Manchanda
Professors	U.Nayar R.L.Bijlani
Emeritus Professors	B.Singh B.K.Anand
Additional Professors	B.K.Kapoor K.Khetarpal S.L.Malik U.Sachdeva V.Mohan Kumar
Associate Professors	S.R.Gupta P.S.Rao S.Khanna J.Sengupta
Assistant Professors	S.C.Bhatia R.Mathur A.Kumar K.K.Deepak S.C.Mahapatra

Dr. U.Nayar resumed her duties in the department from April, 1988 after spending two years as Professor of Physiology at the College of Medicine and Medical Sciences, King Faisal University, Damman, Saudi Arabia.

Dr. U.Sachdeva left for Queen's University, Kingston, Canada on a one-year research fellowship of the Association of Universities and Colleges of Canada.

EDUCATION

Continuing Medical Education

The second national workshop on "Assessment in Medical Education (Physiology)" was organised in March 1989 under the Chairmanship of Prof. S.K. Manchanda, with Prof. U. Nayar as co-chairperson and Dr. B.K. Kapoor as general secretary. During the workshop, Dr. S.K. Manchanda gave talks on "Assessment in Medical Physiology" and "Curriculum designing". Dr. U. Nayar spoke on "Assessment of practical skills" and "Evaluation of teaching by the students", Dr. R.L. Bijlani on "Objective structured practical examination (OSPE)" and "Role of essay type and short answer questions" in assessment", Dr. B.K. Kapoor on "The multiple choice question", Dr. K. Khetarpal on "Oral examination" and Dr. S.L. Malik on "Student attitude towards OSPE",

Dr. S.K. Manchanda lectured on The Nerve Impulse and allied membrane phenomena, and gave laboratory demonstrations on conduction of nerve impulse and evoked responses during the second Neurobiology Course for Postgraduates in Clinical Neurosciences.; gave an invited lecture on "Current Trends in Medical Education and Evaluation at the Pre-clinical Level" in the symposium held at the time of XXXIV Annual Conference of Association of Physiologists and Pharmacologists of India.; participated in the symposium on Yoga in Health and Education organized by the National Council of Educational Research and Training.; Neurophysiological Basis of Hypnosis in the III National Conference on Hypnosis and Psychosomatics (November 1988).; Curriculum Designing at the A.I.I.M.S. and the Role of Curriculum Committee in a Workshop on Medical Education.

Dr. U. Nayar attended workshops organised by WHO & National Institute of Health & Family Welfare on "Management training for undergraduate and postgraduate courses in medical colleges" and on "Restructuring of graduate training in family welfare in medical colleges of India".; gave a lecture on "Neuro physiological

basis of pain" at the IInd Neurobiology course for postgraduates in clinical neuro sciences held at AIIMS in November, 1988.; organised the 5th annual conference on Pain under the joint auspices of Indian Society for the Study of Pain (ISSP) and ISPRAT in February, 1989.

Dr. R.L.Bijlani gave talks on "Physiology of gastric secretion" at a CME symposium on peptic ulcer organised by the Indian Academy of Gastroenterology (IAG) at Simla in September 1988.; and on "Dietary fibre in relation to gastrointestinal disease" at the annual Conference of IAG at New Delhi in February 1989.

Dr. K.Khetarpal was the Director of the Second Workshop on "Environment and Health" held in October 1988 in which lecture- demonstrations were given by Dr. K. Khetarpal, Dr. S.R. Gupta and Dr. P.S. Rao . She was the chairperson of the session on environment in the conference "Role of Women Scientists in Environmental Reconstruction" organised by the Association of Scientific Workers of India in April 1988.; gave an invited lecture on "Artificial Lung" at the second national workshop on Biomaterials and Artificial Organs organised by the Biomedical Engineering Department of the I.I.T. New Delhi in April 1988.

Dr. V.Mohan Kumar gave a lecture in the seminar on "Neural plasticity and transplantation" in the postgraduate neurobiology course organised by the Neurosciences Centre, AIIMS in November 1988.

Dr. Anand Kumar gave a talk on "External assessment in the present undergraduate teaching in the pre-clinical departments" at the workshop "Evaluation and assessment in undergraduate medical education" held at AIIMS in December 1988.

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RESEARCH

Research Completed

Response of preoptic neurons to iontophoretically applied norepinephrine

The effects of application of norepinephrine and glutamate, and stimulation of ascending reticular activating system (ARAS), were studied on 90 neurons of preoptic area. Of the 30 neurons which were excited by glutamate, 10 were inhibited by the application of norepinephrine. Stimulation of ARAS, which brings about alterations in cortical EEG, did not affect any of the preoptic neurons studied. The studies suggest that the norepinephrine-sensitive neurons of the preoptic area are not directly involved in altering the activity of preoptic cells which are involved in sleep-wakefulness.

Kainic acid lesions of preoptic area on ovulation in normally cycling female rats

Bilateral injection of kainic acid in the preoptic area produced persistent estrus in normally cycling female rats. The results indicate that the cells of preoptic area mediate the cyclic vaginal changes in female rats.

Lung function tests of patients suffering from allergic symptoms

Fourteen patients were tested. Seven were in the acute phase and showed a significant reduction of vital capacity (VC) and FEV₁. The other seven were in a phase of remission and had¹a 1 normal vital capacity. Four patients in the second group had a reduced FEV₁. This shows that in a phase of remission measurement¹ of VC alone can be deceptive. A measurement of VC combined with FEV₁ is a better indicator of the airway resistance¹.

Biocompatibility of a modified PVC film

A modified film of PVC was tested for its biocompatibility with human blood. Tests of coagulation and fragility indicated that this film was not compatible with human blood. Hence this film could neither be used for making bags for storage of blood nor any tissue implant.

Choice of contraceptive in young women

A study on the choice of contraceptive in 3440 women of age 20-30 years in 5 blocks of Madangir showed that contraceptive measures were being used by 2900 women. Of these, oral contraceptives were being used by 950 women in contrast to 700 who were using an intrauterine contraceptive device (IUCD). The remaining 1250, which constituted the largest group, said that their husbands used the condom. Thus condom continues to be the most popular contraceptive. Among the methods available to women, the pill seems to enjoy a marginal preference over IUCD.

Research Continuing

Biofeedback as an intervention procedure in the management of epilepsy

Base line data was collected on 27 patients of epilepsy with respect to their history, clinical findings, serum drug levels, EEG and frequency analysis (FA). Seven patients in whom FA was done, showed prominence of low frequency rhythm of EEG. The EEG and FA data from normal controls showed prominence of alpha rhythm of EEG. Designing and fabrication of sensorimotor rhythm (SMR) Biofeed back equipment has completed and the effect of biofeedback on epilepsy will be examined with respect to its possible role in treatment.

Feeding behaviour in normal and malnourished developing rats

The hypothalamus continues to grow postnatally and its development is affected by nutritional status and the environment. Ontogeny of putative safety factor caerulein, (which is chemically similar to cholecystokinin) was studied in developing rats. The effects of intraperitoneal caerulein injections on 30-min food intake and daily growth were observed. Rat pups of age 9-11 days ingested significantly more whereas those of 15-19 days ingested significantly less food after 0.8 mg/kg body wt caerulein injections. Lower doses of caerulein (0.43 mg/kg body wt) were ineffective 4-6 days later there was temporary circumscribed alopecia due to loss of hair follicles at the injection site.

Steroid receptors in rhesus monkey endometrium during early gestation

The role of estrogen in blastocyst implantation is controversial. In our studies using the rhesus monkey as the primate model, we have shown that preimplantation endometria show a higher absolute level and a varying profile of estrogen receptors. We speculate that the change in receptor dynamics qualifies as an early maternal recognition of the presence of preimplantation stage conceptus. Studies are in progress with an antiestrogen, tamoxifen, to evaluate its potential application in fertility regulation by interfering with the process of implantation.

Epithelial-mesenchymal signal-response system at implantation

Preliminary studies revealed that endometrial epithelial stromal cells grown on three dimensional collagen matrix maintain mutual orientation and epithelial cell polarity in a manner highly comparable to that in vivo. The cells provided optimal density and media incorporate radioactive thymidine and a consistent pattern of cell proliferation was obtained

over a period of two to three weeks. Studies are now being initiated to investigate the cellular responses to administration of estradiol and progesterone into the culture medium.

Thyroid ovarian relationship

Immature female rats treated with propylthiouracil showed growth retardation and delay in sexual maturation. When treatment with propylthiouracil was discontinued, improvement was seen in four weeks. The growth rate improved and the rats showed regular estrus cycles and mating resulting in a normal pregnancy. However, they showed a higher prenatal loss and a smaller litter size than controls.

Dietary unsaturated oil and reproductive performance

One group of immature rats were fed a diet containing 20% rapeseed oil (89% unsaturated fatty acids). The other group (control) was given a similar diet containing coconut oil (87% saturated fatty acids). Growth and sexual maturation were compared in the two groups. Preliminary results show no detrimental effects of the unsaturated oil on growth, vaginal opening and regularity of estrus cycle.

Effect of oxytocin on fructose production by mouse seminal vesicles and coagulating glands

Oxytocin (Sandoz) in a dose of 0.5 u (i.p.) or more significantly increased the blood glucose levels of mice 0.5 h after the injection. The plasma testosterone showed a slight fall following oxytocin (Sandoz) injection. These changes were not observed with a batch of oxytocin from Parke Davis. The bioassay of oxytocin using both preparations is in progress to investigate the possible reason for discrepancy.

Evaluation of coarse cereals for diabetics

Coarse cereals, with their high fibre content, may be expected to have a weak glycaemic response, and

hence to be suitable for use in diabetic diets. The mean plasma incremental glucose (mg/100 ml) response to a 50 g carbohydrate portion of bajra 0.5h after ingestion was 33.2 in nondiabetics and 56.1 in diabetics compared to 48.0 and 64.1 respectively for a 50 g-carbohydrate portion of white bread. The corresponding values for plasma insulin (μ /ml) were 42.7 and 16.8 for bajra and 39.5 and 11.3 for bread in nondiabetics and diabetics respectively. Studies with other cereals are in progress.

"Effect of exposure to electromagnetic field on gustatory response in developing rats" (in collaboration with school of environmental sciences JNU)

Recently, there has been an increasing concern about potential effects of exposure to electromagnetic field (EMF) of extremely low frequency (0-100 Hz). particularly from power transmission and electrical gadgets at home and work places. The exposure is more hazardous for developing animals. Our previous work suggested that their gain in weight is slowed down and food intake reduced on exposure to 50 Hz (30 kv/m) electromagnetic field for 23 hr/day. The gustatory responses were investigated after weaning in various groups of rats from day 31-47 using various test solutions. The exposed rats ingested significantly less tap water, saline and sucrose solutions but equal quantities of citric acid as compared to control animals. The results suggest that the gustatory response is not secondary but may be contributing towards lower food intake and body weight in EMF exposed developing rats.

Effect of Kainic acid lesion on thermoregulation and vaginal cyclicity in female rats (Anat. NSC, Physio)

Functional recovery after preoptic transplantation (Anat, NSC, Physio)

Effect of destruction of catecholamine fibres in the medial preoptic area on sleep wakefulness in rats (Anat, Physio)

Performance of aphasic subjects on stimulus discrimination tasks as a function of task difficulty (NSC, Physiol)

New Research

1. To study the feeding behaviour of hypothalamic lesioned rats after neural tissue transplant.
2. To study the electrophysiological correlates of neural transplants in sensory cortex and hippocampus of rhesus monkeys and rats.
3. To study the local effects of opioids and their antagonist on tonic pain in monkeys.
4. Hypothalamo-thalamic interaction in the control of aggressive behaviour in cats.
5. To study the autonomic dysfunctions resulting from diseases that affect primarily either the central nervous system or the peripheral nervous system.
6. Embryo endometrial interactions and the role of putative protein signals during the preimplantation stages in the rhesus monkey (Macaca mulatta).
7. An investigation into the effect of co-ingestion of fat on glycaemic response and the mechanism thereof.
8. Impact of industrial air pollutants on human health & performance.
9. A study of autonomic functions in diabetes.
10. Effect of automobile exhaust and noise on traffic policemen in Delhi.
11. Time utilization by para clinical medical students.

12. Time utilization by clinical medical students.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. K.Khetarpal was conferred the fellowship of the National Environmental Science Academy.

Significant Events

Dr. S.K. Manchanda was a member of the organizing committee and the International Teaching Faculty of the First Intensive Workshop on Basic Neuroscience held in Bangkok under the auspices of the International Brain Research Organization in October 1988, gave lectures and demonstrations on Neural Basis of Behaviour in the Workshop. He was invited by the W.H.O. to be the External examiner in Part I Examination of the Bangla Desh College of Physicians and Surgeons in Dhaka, study the system of the Part I examination and suggest ways and means to improve it.; inspected the medical colleges affiliated with the University of Madras on behalf of the Medical Council of India for postgraduate studies leading to M.D. in Physiology.

Dr. U. Nayar was elected the President of the Indian Society for Pain Research and Therapy and Executive Editor of the Indian Journal of Physiology and Pharmacology.

Dr. K.Khetarpal was elected to the Executive Committee of Indian Association of Sports Scientists.; was appointed Joint Secretary of Research Society for Study of Diabetes in India.; acted as a member of the Scientific Committee of the Indo-U.S. Symposium on Diabetes held at AIIMS in Dec., 1988.; was invited to participate in the meeting of the Environmental Committee of the Indian Road Congress at the Central Road Research Institute.; attended the International Conference on Environmental Impact Analysis in Developing Countries.

Dr. K.K. Deepak visited Australia to attend the 9th Meeting of Australian Neurosciences Society, and visited neuroscience labs in Melbourne and Sydney.; was the Joint Secretary and resource person for the III National Congress of Hyponosis and XI Pre-Congress Workshop Nov. 1988.

Visiting Scientists

Prof. Hans-George Ross from the Physiologisches Institut de Universitat, Dusseldorf, West Germany, gave a talk entitled "Vestibular influences on Renshaw cell excitability".

i) Dr. S.G. Danko from Institute of Experimental Medicine Academy of Medical Sciences, U.S.S.R. gave a talk entitled "Polyelectro-neurography" being used in several of their laboratories for recording brain potentials.

ii) Dr. E.K. Shkhinck from Institute of Experimental Medicine, Academy of Medical Sciences, U.S.S.R. gave a talk entitled "Hormonal control of immune response".

iii) Dr. Victor A. Grigriev from Institute of Experimental Medicine, Academy of Medical Sciences, U.S.S.R. gave a talk entitled "Neural control of immune response" on 20th Dec., 1988.

Prof. G. Akoev from I.V. Pavlov Institute, Leningrad gave a talk entitled "Responses of ampullae of Lorenzini to electrical, magnetic & thermal stimuli".

Prof. Colin Blakemore, Waynflete Professor of Physiology at Oxford University, delivered a lecture on "Principles of development in the mammalian visual system".

Professor Vera Lepicovska of the Institute of Physiological Regulations, Czechoslovak Academy of Sciences spent a period of two weeks in the Department

of Physiology participated in some human experiments on meditation, and gave a lecture on psychophysiology of yoga practices.

Prof. T.J. Biscoe of the University College, London, gave a lecture on Oxygen Transduction in the Carotid Body.

HOSPITAL SERVICES

Autonomic Function Test Laboratory has been set up in the Department. Following tests are being carried out when referred by the Clinical Faculty :

- i) Slow Respiration Test
- ii) Valsalva Manoeuvre
- iii) Cold-Pressor Test
- iv) Handgrip Test
- v) Head-Tilt Test.

Community Services and Education

Dr. R.L.Bijlani delivered talks on 'Curd', 'Cholesterol' and 'Diet for growing children' on AIR in Hindi and a talk entitled "Eating Scientifically" under the auspices of the National Association for Critical Care Medicine.

Dr. K.Khetarpal published posters on "Effect of automobile fumes on health". She prepared educational material entitled (a) Dust and Health, (b) Smoking and Health, and (c) Avoid cigarette smoke, specially directed at the rural population.; gave a radio talk on "Pain mechanisms and relief" and "Edible colors in the diet".

Dr. S.R.Gupta gave talks on "effect of diet on work performance" and "Role of vitamins in health" on AIR in Hindi. Dr. R.L.Bijlani and Dr. S.R.Gupta participated in a series of AIR discussions entitled "Jeevan Saurabh" centred around sexual and growth problems of teenagers.; gave a talk on spacing of pregnancies in Hindi at Madangir under the auspices of the Inner Wheel of Rotary Qutub.

Popular Articles

1. Khetarpal K. Physiological basis of cramps. Elderly Forum 1988; 3 : 5-6.
2. Khetarpal K. Some facts about arthritis. Elderly Forum 1988; 3 :5-7.
3. Khetarpal K. Blood pressure variations, Elderly Forum 1989; 4 : 5-6.
4. Kumar, A. Regulation of body osmolaity, sodium and fluid volume by the kidneys. Junior Science Digest, November 1988, pp.20-24.
5. Kumar, A. Eicosanoids, Junior Science Digest, January 1989, pp 18-22.
6. Kumar, A. Disorders of glucose metabolism Junior Science Digest, March 1989, pp 12-14 & 55.

PUBLICATIONS

1. Bijlani RL. How to stimulate basic medical research in developing countries. Trop gastroenterol 1988; 9:109 - 110.
2. Bijlani RL, Sud S, Siddhu A. Effect of the fat content of the evening meal on postprandial glycaemia observed in a tolerance test performed on the next morning. Diabetes Bulletin 1988; 8 :27-28. (Abstract).
3. Datta, S, Mohan Kumar V, Chhina GS, Singh B. Interrationalship between the thermal and sleep-wakefulness changes elicited from the medial preopticcorea. Exp. Neurol. 1988; 100 : 40-50.
4. Dawra PS, Aneja IS, Manchanda SK, Bhatia SC, Tandon OP. Midbrain cholinergic mechanisms in elicitation of aggressive behaviour in cats. Prog. Neuropsychopharmacol Biol Psychiat 1988; 12:445-453.

5. Dawra PS, Rao PS, Manchanda SK, Tandon OP. Midbrain cholinergic mechanisms regulating cardiovascular responses during hypothalamic defence reaction. Prog Neuropsychopharmacol Biol Psychiat 1988; 12 : 617-627.
6. Deepak KK. Hypnosis in dental patient for the management of fear and pain. Stomatologica India 1988; 2: 46-48.
7. Ghosh D, Sengupta J. Patterns of estrogen and progesterone receptors in rhesus monkey endometrium during the secretory phase of normal menstrual cycle and preimplantation stages of gestation. J Steroid Biochem 1988; 31:223-229.
8. Ghosh D. Sengupta J. Endometrial responses to a deciduogenic stimulus in ovariectomized rhesus monkey treated with oestrogen and progesterone. J Endocr 1988; 120:51-58.
9. Khetarpal K. Exercise in management of diabetes. Diabetes News 1988; 2 : 1-3.
10. Mahapatra SC, Bijlani RL, Nayar U. Effect of cellulose and ispaghula on intestinal function of hamsters maintained on diets of varying fibre content. Indian J Med Res 1988; 88:175-180.
11. Mahapatra SC, Bijlani RL, Nayar U. Effect of cellulose and ispaghula husk on fasting blood glucose of developing rats. Ind J Physiol Pharmac 1988; 32:209-211.
12. Mallick HN, Mohan Kumar V, Singh B. Thermal changes produced by norepinephrine application in the preoptic area of monkeys. Ind J Physiol Pharmac 1988; 32 : 83-92.
13. Manchanda SK, Malik SL. A survey of academic and non-academic factors which influenced the selection of medical undergraduate students in Delhi. Ind J Physiol Pharmac 1988; 32; 402 (abstract).

14. Manchanda SK. Current trends in medical education and evaluation at pre-clinical level. Ind J Physiol Pharmac 1988; 32; 435 (abstract).
15. Mohan Kumar V, Mallick BN, Chhina GS, Singh B. Responses of preoptic neurons during spontaneous and reduced cortical EEG changes. Ind J Physiol Pharmacol 1988; 32: 83-92.
16. Poddar A, Manchanda SK, Bhatia SC. Effects of lesions in periaqueductal gray on aggressive behaviour elicited by hypothalamic stimulation in cats. Ind J Physiol Pharmac 1988; 32:403-404 (Abstract).
17. Sengupta J, Talwar D, Paria BC and Ghosh D. Endometrial phosphatases B glucuronidase and cathepsin D during menstrual cycle and pre-implantation stages of gestation in the rhesus monkey (*Macaca mulatta*) Acta Endocrinologica (Copenh) 1988; 118: 142-146.
18. Sud S, Mahapatra ISC, Bijlani RL, Nayar U. Effect of cellulose and ispaghula husk on small intestinal structure of young rats and hamsters. Ind J Med Res 1988; 87:631-636.

Collaborative publications

6

Chapters in books

In Brain and Psychophysiology of stress. Eds. Sharma KN, Salvamurthy W and Bhattacharya N. Indian Council of Medical Research, New Delhi, 1988,

1. Mathur R, Behari J, and Sharma KN. Effect of chronic stress (Electromagnetic field) during development pp. 213-220.
2. Mohan Kumar V, Datta S, Gandhi N, Chhina GS, Singh GS, Singh B. and Kaur G. Alterations in the medial preoptic functional resulting from local changes in the neurotransmitters pp. 60-70.

3. Nayar U, Alreja M, & Manchanda SK. Brain mechanisms in stress induced analgesia p. 142-149.

Das M., and Manchanda, SK. Status of Pharmacology Teaching and Training Facilities in Malaysia : Pharmacology for Health in Asia. Eds. BN Dhawan, KK Agarwal, RB Arora & SS Parmar, Allied Publishers Pvt. Ltd., New Delhi, 1988, pp.633-637.

In : Lectures in Neurobiology. Eds. P.N. Tandon, V. Bijlani and S. Wadhwa. Neurosciences Centre and Department of Anatomy, AIIMS New Delhi, 1988.

1. Mohan Kumar V Synaptic transmission pp. 26-31.
2. Mohan Kumar V. Neural transplantation - functional aspect pp. 157-162.
3. Rao PS. Aspects of sensory physiology. pp 62-66.

MONOGRAPHS

Sharma KN, Nayar U, & Battacharya N. KCurrent trends in Pain Research & Therapy Vol. III. Pain mechanisms and management (musculo skeletal & related disorders). Indian Society for Pain Research & Therapy, New Delhi, 1988.

Sharma KN, Nayar U, & Bhattacharya N. Current trends in Pain Research & Therapy. Vol. IV Chronic Pain : reactions, mechanisms & modes of therapy. Indian Society for Pain Research & Therapy, New Delhi, 1989.

Chapter 6.6

BIOMEDICAL ENGINEERING UNIT

FACULTY

Professor and Head	S. K. Guha
Professors	M. P. Singh S. N. Tandon V. S. Seshadri D. Mohan
Assistant Professors	S. Anand K.B.Sahay A.R.Ray
Lecturer	H. Singh

EDUCATION

Continuing Medical Education

Two sessions were organised on Technology in reproductive medicine at the tenth IEEE conference in Engg.in Medicine and Biology held in November 1988

First national conference on Biomechanics was organised in December , 1988. "2nd national conference on Biomaterials & artificial organs" was organised in April, 1988.

Prof. S.K.Guha spoke on laser applications in surgery in a workshop on Lasers in Chemical and Biological Sciences December 1988 in IITD and Guidelines for rehabilitation aids design in India, keynote address in a workshop on Modern Technology in Rehab-Aids for the handicapped January, 1989.

A course on Electronics and Applied Acoustics was taken in the Department of Otolaryngology for the B.Sc. students.

RESEARCH

Research Completed

Non-Invasive methods of monitoring anterior fontanelle pressure

Based on the mathematical calculations and physical model studies an anterior fontanelle tension (AFT) transducer has been designed, fabricated and standardised. The studies were conducted on preterm, asphyxiated, haemorrhagic, convulsive, hydrocephalic and edematous infants. Results indicate that the method can be used for diagnosis in critically ill babies much before clinical symptoms arise. Some algorithms have been implemented and others are being developed to have an on line computer analysis of AFT data to help the clinician to avert emergent situations.

Laser application for population control (BARC)

By gripping the skin of the scrotal sac, the vas deferens can be palpated but unlike a vein can not be seen through the skin. Even if a strong beam of ordinary white light is used to transilluminate the scrotal sac, the vas deferens does present a contrast image to help injection. The absorption spectra of the vas deferens and all its coverings was studied. No specific spectral band giving a contrast was found but it was seen that a He-Ne laser beam used to give illumination at the edge with a specific separation of one of the layers of the scrotal sac skin and the vas deferens gives contrast and improved visualisation. A needle probe has been devised to transmit a laser beam using fibre optic bundle for convenience sake, observation by minimising scattering. Studies on rabbit utero-tubal

junction have shown that adequate occlusion cannot be obtained with the CO2 laser beam but Nd-Yag laser results are promising in respect of its coagulative affects.

Research Continuing

Equipment for mass health care (Department of Electronics)

Along with the Department of Electronics and Directorate of Health Services certain technological equipment for primary health centres had been identified consisting of 18 items. Earlier only four trial centres at extreme geographical locations were taken up. Seventeen new centres were established during the current year.

Toxicological evaluation of water treatment chemical

A consultancy project on " Toxicological evaluation of water treatment chemicals " developed and supplied by 'Nuchem plastics Faridabad was undertaken. These chemicals are being evaluated for toxicity using LD 50 and LD 100 test effects on blood components, proteins and enzymes.

Development of antibacterial nylon suture (ICMR)

Nylon sutures were doped with iodine to develop antimicrobial sutures effective for a long period. It was observed that amount doped is proportional to concentration of iodine doped is proportional to concentrations of iodine in acetone solution. Some preliminary results indicate that these sutures are active against bacteria. Detailed studies for evaluating long term antimicrobial effects are underway.

Development of elastic copolyurethane sutures

Polytetramethylene glycol PTMO having a molecular weight of 10,000 - 30,000 were synthesized and

characterized. Polyurethane of various composition based on butanediol and hexamethylene composition based on butanediol and hexamethylene di-isocyanate; polyethylene glycol, 4,4' - diphenyl methane di-isocyanate, propane 1,3 diamine were prepared and characterized. Filaments were spun from these materials using both melt spinning and solution spinning methods. Their mechanical properties such as tensile strength, creep, viscoelastic properties were evaluated. Biocompatibility studies of these materials are continuing.

Studies on composites of synthetic polymers with biopolymers

Attempts were made to prepare composites of bovine serum albumin (BSA) with polypropylene, polyethylene terephthalate nylon b, polyacrylamide, polyvinylalcohol. Their physico-chemical properties were evaluated. In order to improve their mechanical strength both chemical crosslinkers and gammaradiation are used.

Safety of agricultural implements

This project involves the understanding of effects of technology and agricultural practices on the health of a rural population of 25,000 in 9 villages of Sonapat district, Haryana. Health of all families (3,500) has been monitored over a year by biweekly visits. All agricultural equipment has been evaluated for problem areas effecting health of farm workers. Work is in progress for determining safer designs of implements using biomechanics of human tolerance and ergonomic principles. Work has been started on evaluation of technologies which would be more effective in treatment of fractures and amputation in rural areas.

New Research

1. Cochlear prosthesis
2. Handheld data entry terminal

3. Noncontact displacement measuring system
4. Design of child resistant container
5. Peristaltic transport of non-Newtonian fluids in tubes with different shapes

AWARDS AND EVENTS

Distinctions, Awards, Honour

Prof. S.K.Guha received the topmost national research award for the year 1988-1989 given by the National Research and Development Corporation; and the Technology Invention Award in Rehabilitation of the Visually Handicapped given by the Ministry of Social Welfare.

Dr. S. Anand received the topmost national research award for the year 1988-1989 given by the National Research and Development Corporation; and the Technology Invention Award in Rehabilitation of the Visually Handicapped given by the Ministry of Social Welfare.

Significant Events

Prof. Guha was elected Fellow of the Indian National Academy of Engineers.

Community Services and Education

Emergency care vehicle; A new stretcher for narrow stair cases and Micrometer for the blind have been patented.

Knowhow has been transferred to National Institute of Visually Handicapped and the Blind Men's Association Ahmedabad on the centre lathe for the blind

Collaborations

A joint project of the IITD and PIACT Seattle, USA has been accepted in principle by United Nations Funds for Population Aid (UNFPA) for support in the area of testing and failure research on contraceptive devices.

Microcomputer based biomedical techniques: Speech and ECG signal analysis using DSP U.K.

PUBLICATIONS

1. Anand, S., Electrical pacing of the ampullary isthmic junction for contraception. Proc. IEEE Engg. Med. Biol. 1988; 10:1879-1880.
2. Anand, S., Guha, S.K., On line diagnosis of problems in drip infusion system by impedance and flow measurement. Proc. IEEE Engg. Med. Biol. 1988; 10:1317-1318.
3. Bhattacharya B. and Tandon S.N. Potential distribution in thorax in relation to electrical field plethysmography. Med.Biol. & Comput. 1988; 26 : 303-309.
4. Debnath N. Anand, S. and Guha, S.K. Electrical current distribution analysis for FES of the paraplegics. Automedica 1988; 11: 49-58.
5. Debnath, N., Anand, S., Guha, S.K., Current distribution and motor unit recruitment in multiplane FES. Proc. IEEE Engg. Med. Biol. 1988; 10:1743-1744.
6. Guha, S. Anand, S and Sharma, J. Foot controlled artificial arm with complementary activation by body Power. Automedica 1988; 11:44-49.
7. Guha S.K. and Anand S A new stretcher design for easy manoevrability on narrow stair case and rough ground. Engineering in Medicine 1988; 203(H1):55-60.

8. Guha, S.K., Electrical effects on mammalian sperm. Proc IEEE Engg. Med. Biol. 1988; 10:1883-84.
9. Guha, S.K., Anand, S., Debnath, N. Jain, G.L. and Koul, V. S. Ansari Evaluation of a comprehensive risk factor index for acute Coronary Insufficiency. Proc. IEEE Engg. Med. Biol. 1988; 10:260-261.
10. Guha, S.K. and Chaudhary, K.K. A practical approach to multifunctional above knee prosthesis. Automedica 1988; 11:200-210.
11. Jain, G.L., Guha, S.K., Pasricha, J.S., A pressure indicating ring for patients with hand pressure sense loss. Proc. IEEE Engg. Med. Biol. 1988; 10:1597-1598.
12. Koul, V.K., Debnath, N., Anand, S. Guha, S.K., Debnath, N. New approach to haemoglobinometry based on reflectance photometry. Proc. IEEE Engg.. Med. Biol. 1988; 10:1847-1848
13. Dinesh M.: "Socio technical correlates of disability and projections for future trends in India". Indian Journal of Disability and Rehabilitation, 1988, 49-62.
14. Singhal, J.P., Singh H. and Ray, A.R. Biostable sutures. J. Macromol. Sc. Chem. Rev. 1988; 28 (3-4);475.

Collaborative publications

1

Chapters in Books

1. Dinesh M. and Romer C.J. "Mortalite et Morbidite accidentelles dans les pays en development". In Les Accidents De L'Enfant Et De L'Adolescent, Eds. M. Manciaux and C.J. Romer, 47-56, INSERM, La Documentation Francaise, Paris, 1988.

2. Dinesh M. "La Lutte Contre les accidents chez les jeunes: technologies, biomecanique et securite des produits." In Les Accidents De L'Enfant Et De L'Adolescent, Eds. M. Manciaux and C.J. Romer, 167-176, INSERM, La Documentation Francaise, Paris, 1988.
3. Sahay, K.B. ,Mehrotra, R. ,Sachdeva ,U. and Banerji, A.K.,The pressure-volume response of the cranial and craniospinal CSF space in dogs. In Biomechanics, eds K.B.Sahay and R.K.Saxena, Wiley eastern (1989).

Books

Biomechanics : Ed. Sahay K.B. & Saxena R.K. Wiley Eastern, New Delhi, 1989.

Papers presented at scientific meetings	25
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Papers accepted for publication	8
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Chapter 6.7

BIOTECHNOLOGY

FACULTY

Professor and Head

I. Nath

Associate Professor

J. Tyagi

Y.D. Sharma

H.K. Prasad

EDUCATION

M.Biotech Course

The first batch of students admitted to the course leading to the degree of Master in Biotechnology (M.Biotech) passed out in May 1988.

Continuing Medical Education

Dr. I. Nath and Dr. H.K. Prasad undertook teaching hybridoma technology for 10 days at the Molecular Biology Unit of BHU in a course organised for 15 candidates from national centres and sponsored by DBT and DST. Both theoretical and experimental aspects were taught.

Dr. J.S. Tyagi was invited as faculty to deliver a lecture and to demonstrate DNA probes in a DBT-sponsored short term training programme entitled 'Development and Handling of Molecular Probes in Diagnosis of Tropical Diseases' organized by the Centre of Biotechnology, Anna University, Madras during March 9-11, 1989.

Dr. Y.D. Sharma was invited to deliver a lecture on 'Recombi-nant DNA Technology' in a workshop on 'Advanced techniques in immunochemistry with special reference to Parasitic disease' held at NICD Delhi in August 1988.

Dr. H.K. Prasad gave invited lectures in National Institute of Immunology on 'Immunity to bacteria

RESEARCH

Research Continuing

IMMUNOLOGY

Leprosy

a) T cell clones and lines are being produced from leprosy patients with a view to understanding the antigens recognised by healthy as compared to diseased individuals. These are being developed from peripheral blood as well as lesional tissues. The methodologies for the latter are being standardised.

b) The direction on in situ studies on leprosy lesions has changed. The macrophages from lesions of leprosy patients are being isolated and their capacity to produce toxic oxygen radicals such as H_2O_2 and super oxide are under investigation. Since² these² are implicated in the killing of intracellular bacteria, quantification of their release is expected to give an understanding of the ability of the patients' immune response to kill M. leprae.

Hybridoma technology

Monoclonal antibodies to LSR-2 fusion protein are being developed. 12 partially characterised hybrids are available. The ones with the highest titre are being cloned.

RECOMBINANT DNA TECHNOLOGY

a) Leprosy

The 4 recombinant clones of M.leprae labelled LSR 1,2,3,4 reported earlier by us have been partially characterised. All clones produce 135 KD fusion protein, do not hybrise with the 5 known clones identified in the international laboratories using monoclonal antibodies. The protein does not react with antibodies to heat shock proteins. Thus these clones appear to be unique. Attempts have begun to sequence the DNA of LSR 1 and 2.

b) Malaria

We have constructed two gene libraries for P.vivax using two different lambda vectors namely, EMBL and labda gt11. Work has begun on screening of these two libraries using (1) DNA probes (Knob protein gene and heat shock protein gene from P.falciparum) and (2) antibodies obtained from malarial patients suffering from vivax infection.

Polyclonal antibodies have been raised against the recombinant clone synthesizing heat shock protein. This anti-heat shock protein antibody for African isolate of P. falciparum reacted strongly with Indian isolate indicating that some common antigenic epitopes are conserved among these two distinctly related isolates. The same recombinant clone has also been used to immunize mice in order to raise monoclonal antibodies.

The knob protein gene from the Indian isolate and Honduran isolate of P. falciparum is under investigation. A 15 Kb EcoRI fragment of Indian isolate is identified which hybridized with previously cloned knob protein gene from African isolate. Cloning of this EcoRI fragment in lambda charon 4A is in progress. Taq I fragment from knob protein gene of

Honduran isolate has been subcloned into the bacteriophage M13, MP18 and MP19 vectors for nucleotide sequencing. This Taq I fragment codes for histidine-rich domain of this protein.

c) Tuberculosis

Construction of M. tuberculosis gene bank: Fragments approximately 2-4 Kb in size generated by partial Sau3A digestion of M.tuberculosis H37 Rv DNA were cloned into the BamHI site of the E.coli plasmid vector pUC8. A DNA library with 98 percent probability of complete genome representation has been prepared.

Analysis of tRNA genes in mycobacteria

1. Twelve hundred ³²P transformants of the MTB gene bank were screened with ³²P cDNA synthesized from to crude transfer RNA (tRNA) from MTB H37 Rv, nine positive clones were identified. These clones are undergoing further characterization.

2. ³²P labelled cDNA synthesized from purified tRNA from MTB H37 Ra and M. smegmatis were prepared using reverse transcriptase. These probes were hybridized to Southern blots of various mycobacterial DNAs digested with several restriction enzymes and the following observations were made. Hybridization patterns were different between the slow growing and fast growing mycobacteria. A characteristic hybridization pattern was obtained with each of the mycobacterial species tested. For any particular strain, weak and strong hybridization signals were obtained. The tRNA genes of species of the MTB complex (MTB H37, Rv, H37 Ra and BCG) map on DNA fragments of apparently identical size. The mycobacterial tRNA genes are present in the vicinity of rRNA genes.

Development of DNA probes

Nine hundred and forty transformants of the above-mentioned MTB H37 Rv library were screened (colony hybridization technique) with DNA from 5 mycobacterial

species belong to the MTB and MAIS complex with the aim of identifying MTB specific DNA fragments. Forty five transformants were identified which were presumably specific for MTB. Detailed analysis of the recombinant plasmids is in progress with a view to using them as diagnostic DNA probes.

New Research

1. Phase I trials on recombinant interferon gamma in leprosy
2. Immunological screening using recombinant fusion protein LSR- 2 of *M. leprae*

New Facilities

Hybridoma laboratories

With an attempt to explore the possibilities of setting up of centralised hybridoma laboratories in AIIMS, facilities have been initially offered to Dr. C. Das, Additional Professor of Bio-chemistry Department and Dr. B.N. Tandon, Professor of Gastro- enterology for developing monoclonal antibodies against beta HCG and non A, non B hepatitis virus. Due to limitation of space, finance and man power, the department is limiting its role to providing mice for immunisation, conducting fusion for hybridomas, cloning and maintaining the successful clones. Several promising hybrids produced anti beta HCG antibodies have been identified and are undergoing specificity testing by radioimmunoassay in Dr. Das's laboratory. Ascites producing BALB/C mice have been supplied to Microbiology, Biochemistry and Gastroenerology.

Liquid Nitrogen Plant

Liquid nitrogen plant has been installed and is undergoing testing. This is hoped to provide liquid nitrogen to AIIMS researchers at the rate of 7L/hour. To date, liquid nitrogen had to be purchased from outlying factories causing great inconvenience in terms

of distance, cost and regularity of supply. This is hoped to be corrected by the central facility.

The construction of the new Biotechnology building has begun

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. I. Nath was invited to deliver the Clayton Memorial Lecture at the London School for Tropical Medicine and Hygiene in UK. She co-chaired the Immunology Session at the International Leprosy Congress held at Hague in Sept. 1988.

Significant Events

Dr. I. Nath is member of Research Council of CDRI, Lucknow, Scientific Advisory Committee, Central JALMA Institute for Leprosy (ICMR) Agra, Programme Advisory Committee in Immunology for DST and 8th Plan for Biotechnology, Planning Commission.

Dr. H.K. Prasad was invited to participate in 'Vaccilep workshop on the immunology of leprosy' held in Khatmandu, March 1989. and participated in 13th International Congress in leprosy at Haque Sept. 1988.

Visiting Scientists

Z.A. Cohn and Dr. G. Kaplan of Rockefeller University USA. Dr. Neil Stoker of London School of Tropical Medicine and Hygiene, Dr. S. Beck of Dindee Medical School, Dr. Paul Wheeler University of Hull. Dr. David Roos of Stanford University, Dr. H.P. Wyatt of UK, Dr. D. Young from MRC UNit, Hammersmith Hospital U.K. visited the department, gave lectures and held discussions.

Delegations from Poland, North Korea and Iran also visited the Department and held discussions on the work being conducted.

PUBLICATIONS

1. Thangaraj H, Laal S, Thangaraj I and Nath I. Epidermal changes in reactional leprosy: Keratinocyte Ia expression as an indicator of cell mediated immune responses. Int. J. Leprosy 1988, 56; 401-406.
2. Kaplan G, Laal S, Sheftel G, Nusrat A, Nath I, Mathur NK, Mishra RS and Cohn ZA. The nature and kinetics of a delayed immune response to purified protein derivative of tuberculin in the skin of lepromatous leprosy patients. J. Exp. Med 1988; 160: 1811-1824.

Chapter 6.8

FORENSIC MEDICINE

FACULTY

Additional Professor and Head T.D. Dogra

Assistant Professor A.K. Tripathy

Dr. A.K. Tripathy joined as Assistant Professor on 12th May 1988.

EDUCATION

Department has introduced practicals aimed to provide training in clinical Forensic Medicine to undergraduates on the subject of age determination, injury report, postmortem report, examination of accused of rape, examination of victim of rape, examination of drunkenness, examination of unnatural sexual offences and certificate of fitness for valid statement.

Three practical exercises out of the above are given in each semester examination for evaluation.

Continuing Medical Education

The department provided facilities for the training programmes organised for police officers and medical officers by the Institute of Criminology & Forensic Sciences. Dr. T.D. Dogra delivered lectures on "Code of ethics and legal aspects of eye donation" August 1988 at RP Centre at the National Workshop on Eye Bank Methodology; "Legal aspects of hospital and health care" May 1988 at the IX National Course for Health & Hospital Administrators organised by Indian Society of Health Administrators in collaboration with Dr. R.P. Centre; "Legal aspects of nursing" in the National Course on Management for Nursing Administrators

organised by Indian Society of Health Administrators; participated in the Seminar on Availability of eyes from postmortem cases - held in Hotel Taj, New Delhi organised by Times Eye Research Foundation, September 1988; lecture on Asphyxial deaths and postmortem changes in the course organised by the Institute of Criminology & Forensic Sciences for the training of medical officers; attended the workshop organised by the Oriental Fire Insurance Co. in the Office of Dy. Commissioner at Tis Hazari, Delhi.

The department is associated in the teaching programme of the National Police Academy, Hyderabad. It has arranged 10 case studies for the Sardar Vallabh Bhai Patel National Police Academy, Hyderabad as a teaching aid to the IPS officers.

RESEARCH

Research Completed

Comprehensive study of suicides during the last one decade

During the last decade, 1976-86 a total number of 1225 suicide cases were brought for postmortem to AIIMS. These were analysed retrospectively considering the history, suicide notes, circumstantial evidences and dying declaration of the deceased. The various parameters e.g. mode of death, time of death, age, sex, month and religion were studied. It was observed that there was no significant difference between male and female as 617 male and 608 female committed suicide during this period. The most common mode of suicide was due to burns (430 cases) followed by hanging (370 cases), poisoning (329) fall from height (43 cases) and fire arms (19 cases). The most common age group was 15-25 years (606 cases). The incidence of suicide was uncommon after 65 years. There were only 2 victims below the age of 10 years. There was a fall in the number of cases after 25 years. The minimum incidence was reported in the first two months of the year January and February (74 cases each) and the highest incidence was recorded in the fifth month (May) 105 cases.

The lowest incidence was found to be on the first day of Month (28 cases) and the highest incidence was observed on 5th and 25th day of a month 50 cases each. The time of suicide was also studied, lowest incidence was observed in 5th hour of the day (5 a.m.). (25 cases) while the highest incidence was observed to be in 11th hour (1100 A.M.) of the day (79 cases). The incidence was varying from 63 to 79 cases from 11th hour of the day to 16th hour of the day. Out of total, 1042 were Hindu, 39 Christians, 35 muslims and remaining of other communities.

Study of pattern of fatal fire arm injuries in South Delhi (1983-87)

In view of the changing pattern in fire arm injuries and increase in deaths due to fire arm injuries, it was felt necessary to analyse the fatal fire arm cases. During 1983-87, a total of 104 cases were brought to the department for postmortem examination. Majority of the fire arm cases were homicidal in nature (84 cases) followed by suicide (11 cases) and accidental deaths (7 cases). The rifle fire arm (rivolver, pistols, rifle and sten gun) were found to be commonest weapon used. The incidence of shot gun was observed in (fire arm weapons firing shots i.e. single/double barrel guns or country made pistols) 19 cases. The most common site favoured was head and neck (41 cases) followed by chest (36 cases) abdomen (18 cases), limbs (15 cases) and spinal cord (3 cases). The shock was the commonest cause of death (71 cases) followed by coma (25 cases) and septicemia (6 cases). Incidence of fire arm amongst males was more common (84 cases) as compared to females (10 cases). The most commonly affected age group was 20 - 30 years (34 cases)and 30 - 40 years (27 cases). On postmortem examination, bullets were recovered in 23 cases and pellets (shots) were recovered in 19 cases. Riots constituted (10 cases), 14 deaths were due to terrorist activity and 3 deaths occurred due to police firing.

Incidence of fatal poisoning in South Delhi

Incidence of fatal poisoning was studied during the span of 3 years 1985 - 87. A total of 149 cases of fatal poisoning came to the hospital for postmortem. In 1985, there were 38 cases, in 1986, 70 cases and in 1987, 41 cases. Majority were male (114). The commonest age group affected was 20 - 30 years (49 cases) followed by age group of 10 - 20 years (32 cases). The commonest fatal poisoning were due to aluminium phosphide (23) and alcohol (27) followed by carbamate (5), opium (4) and organophosphorous (3). Other poisons reported were nitrate, barbiturate, cyanide, methyl alcohol, acids, copper sulphate and chloroquine. The study will help the department to develop screening test for the common poisoning.

Study of LDH, MDH & AK in various tissues to estimate Time since death

Study is in progress to find out the relationship between time since death and the concentration of LDH, MDH & AK in various tissues. The tissues are removed at the time of autopsies and then stored in different climatic conditions. Enzymes are estimated by electrophoresis after interval of fixed hours.

Study to find out the average weight of the various internal organs (in collaboration with the Institute for Research in Medical Statistics (ICMR) New Delhi).

Study of sexual offences in South Delhi.

Study of DDT and pesticide residues in human tissues.

AWARDS AND EVENTS

Significant Events

Dr. T.D. Dogra delivered the Inaugural lecture at the National Police Academy, Hyderabad on the subject "Role of Forensic Medicine in Police Investigations"

and was nominated as member of the Eye Bank Co-ordination Committee, Delhi.

HOSPITAL SERVICES

Department of Forensic Medicine conducted 662 medicolegal postmortems during the year 1988. Provided facilities for cleaning of skull to Crime branch, Delhi for "Super Imposition Technique" to establish identity of the deceased.

Court Attendance

About 606 summons were received to appear as an expert witness from courts of law by the doctors of the department from Delhi and adjoining States e.g. Haryana and U.P.

Casualty Services

The department provided round the clock coverage to Casualty for consultation and handling complicated medicolegal problems. All the accused of the sexual offences and cases of unnatural sexual offences are examined by the doctors of this department. Other complicated cases pertaining to violence and toxicology brought to the Casualty are also examined.

Toxicology and forensic laboratory

The forensic laboratory continues to impart practical training regarding the examination of blood stains, semen stains, hair, fibres at the undergraduate and postgraduate level.

The toxicology laboratory has been equipped with the UV-visible spectrophotometry.

The toxicology laboratory services have been utilised to analyse ethyl and/or methyl alcohol, malathion, barbiturates, morphine, copper sulphate,

arsenic and lead for academic purposes in the post-graduate teaching programme.

Department of Forensic Medicine provided consultation services to Central Investigating Agencies (e.g. C.B.I., Crime Branch. The department gave opinions on post-mortem reports and medicolegal documents of cases being investigated by the Central Investigating agencies. The doctors of the department participated in various meetings of the Board constituted by Central investigating agencies to review the medico-legal cases. The department continued to provide training facilities to C.B.I. and police training school, Delhi.

PUBLICATIONS

1. Dogra T.D., Chatterjee T.K., Bhardwaj D.N. and Chandra J. Study on the pattern of abdominal injuries in fatal road accidents, J. Bureau of Police Res and Develop, 1988 II, Page 16-18.

Books

Tripathy A.K. Samal R.K.: Accidents and its prevention in Community. Pub: Pushtak Mahal, New Nelhi, 1988.

Chapter 6.9

HOSPITAL ADMINISTRATION

FACULTY

Professor and Head	R.P.Sinha
Associate Professor	R.K.Sarma
Assistant Professor	P.C.Chaubey
Assistant Professor	A.K.Gupta

Dr. A.K.Gupta joined the department on May 21, 1988.

EDUCATION

The department has evolved a residency training programme for residents to assist the hospital authorities in carrying out hospital activities and in turn gain experience of hospital jobs. The residents also submit a monthly report to the faculty incharge of respective hospital services:

As part of training programme, resident administrators were placed on round the clock duty in control room of AIIMS hospital as "Duty Officer". The duty officer has acted as nerve centre in coordinating all the hospital activites in routine as well as at the time of any emergencies. The success achieved in solving the problems has established the duty officer as an institution.

Continuing Medical Education

The department in collaboration with Academy of Hospital Administration organised a workshop "Hospital Administration Update" on planning, establishment and maintenance of speciality services in Feb. 1989. The workshop was well attended. On the occasion academy

also brought out its maiden journal which had major contributions from the faculty and residents of the department.

Seminars were organised at Ranchi & Nagpur on primary health care. Faculty also participated in short training programme of Hospital Management of Doctors of Bihar Government.

RESEARCH

Research Completed

Study of nursing services at main operation theatre at AIIMS with special reference to development of trained O.T. nurse

An indepth study of nursing services required in operation theatre in general was carried out, the work was based on prospective study and collection of data from various institutions of the country. The study concluded with the recommendation of separate curriculum for O.T. nurses training.

Study of scope of public relations in hospital with special reference to AIIMS hospital

A study was carried out with a view to find out ways and means by which public seeking medical advises and consultation are satisfied with the care rendered in the hospital.

Study of disaster plan in Delhi metropolis and role of AIIMS to evolve a disaster management mode

A detailed study of existing disaster plan of metropolis and AIIMS was carried out. The researcher has also collected all information of various major disasters in the country and abroad. He has evolved a methodical plan for any eventuality in the metropolis.

Study of purchase system and store management of surgical and medical stores of C.N. Centre

The study focussed on details of materials management with special reference to surgical and medical stores of C.N.Centre. The study concluded with recommendation of centralised procurement and decentralised distribution with built in control system.

New Projects

1. A study of OPD services at AIIMS hospital.
2. A study of utilisation of emergency bed complements at AIIMS hospital.
3. A study of utilisation and maintenance of specialised equipment at AIIMS with special reference to IRCH.

Significant Event

A manpower planning - staffing norms of various size hospitals were developed by the department.

Norms for 30 bedded community centre was evolved by Prof. R.P.Sinha for BIS (Bureau of Indian Standard).

Prof. R.P.Sinha spoke on "Systems Approach to Hospital Services" at Scientific session of Indian Medical Association, Panipat Branch.

PUBLICATIONS

1. Sarma R.K., Chaubey P.C.: Hospital infection control - A case Study Journal Indian Hospital Administration, 1988; 25:181-186.
2. Sarma R.K.: Quality assurance in large teaching hospital. Journal of Academy of Hospital Administration 1988;1: 28-31.

Chapter 6.10

LABORATORY MEDICINE

FACULTY

Additional Professor and Head	R.A. Bhujwala
Assistant Professor	A.K. Mukhopadhyay

The centralised hospital laboratory was re-designated as the Department of Laboratory Medicine w.e.f. 01.12.1988.

EDUCATION

The faculty takes regular classes (both theory and practical) for B.Sc.(Hons) Human Biology. The department provides theoretical and practical training to the postgraduates from the Department of Pathology.

One technician from Bhutan (W.H.O. fellow) has been trained in the department for three months during the year.

CME

A WHO/DANIDA sponsored Inter-country training/workshop for Tutor Technologists was hosted by the department in February March, 1989. 15 participants from SEARC countries (including three from India) were given training. Dr.R.A. BHUJWALA was national co-director and Dr.A.K. Mukhopadhyay on the faculty.

RESEARCH

Research Continuing

Evaluation of safety and toxicity of dexamethasone - cyclophosphamide pulse therapy in pemphigus. (Dermat, Lab. Med.)

Serum calcium and phosphate changes during cardiopulmonary bypass and hypothermia in patients undergoing open heart surgery (Anaesth, CTC, Lab. Med.)

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. A.K. Mukhopadhyay was conferred membership of National Academy of Medical Sciences.

HOSPITAL SERVICES

Emergency section

A. General

<u>Investigation</u>	<u>Number</u>
Haemoglobin	38,350
TLC	31,200
Platelets	05,952
Prothrombin time	07,804
Malarial parasite	05,580
Urine examination	08,184
Urine examination (microsoopic)	01,234
Microbiology inoculation	11,100
C.S.F. and other body fluids.	10,017
Stool for occult blood	00,360
Hanging drop preparation, for cholera.	00,480
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Total :	1,20,261
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B. Chemistry

Investigation

Number

Blood suger	39,211
Blood urea	34,561
Serum bilirubin	16,449
Serum electrolytes	
Na,	33,875
K,	33,875
Serum amylase	04,807
CSF Chemistry	10,017
Barbiturate	56

Total : 1,38,976

GRAND TOTAL 2,59,237

Haematology section

A. O.P.D.

Investigation

Number

Haemoglobin	43,200
TLC	40,920
DLC	40,800
Platelet	09,600
ESR	44,800
Reticulocyte count	04,200
Smear for M.P.	05,000
Peripheral smear morphology	
BT	00,980
CT	00,980
PT	01,230
Clot retraction	00,004

B) Admitted patients

Haemoglobin	28,802
TLC	27,785
DLC	22,880
Platelet	03,280
ESR	22,500
Retioulocyte count	01,502
PCV	01,504

Smear for M P	03,080
Morphology	04,507
PT	03,580
Absolute eosinophil count	00,200

Total :	3,11,334
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Fluid excretion section

<u>Investigation</u>		<u>Number</u>
A. <u>O.P.D.</u>		
	Urine	71,388
	Stool	05,802
	Sputum	02,461
	Semen	02,409
B. <u>Admitted patients</u>		
	Urine	49,920
	Stool	02,514
	Sputum	00,801
C. <u>Microbiological specimen for culture inoculation</u>		10,616
Total :		1,45,911

Clinical chemistry section (OPD and admitted patients)

<u>Investigation</u>	<u>Number</u>
Sugar	90,424
Urea	90,424
Uric acid	19,936

Creatinine	36,729
Protein (total)	30,308
Albumin	30,308
Globulin	30,308
Bilirubin	29,163
Cholesterol	11,997
Alkaline phosphatase	30,635
SGOT	28,789
SGPT	28,789
Calcium	16,002
Phosphate	16,002
Sodium	31,087
Potassium	31,087
17 Ketosteroid	00,169
PHI	00,140
Amylase	02,465
Urine albumin	02,739

Total :	5,27,314

Chapter 6.11

MICROBIOLOGY

FACULTY

Professor and Head	Shriniwas
Professor	R. Kumar
Additional Professors	U. Gupta A. Dasgupta R.A. Bhujwala P. Seth
Associate Professors	J.C. Samantaray U. Banerjee S. Broor
Assistant Professors	Manjunath A. Rattan S. Bhalla

Dr. Manjunath returned in Jan. 1989 after availing one year fellowship at U.S.A. Dr. S. Bhalla joined the Department as assist professor in May 1988.

EDUCATION

Continuing Medical Education

Prof. Shriniwas delivered guest lecture on a) Role of Newer Antimicrobial Agents in Control and Treatment of Drug Resistant Pyogenic organisms in Hospital Practice in Medicine Update, December, 1988 at Maulana Azad Medical College, New Delhi b) Round table conference on Fast Track to Life Threatening Infections - Perception, Predictions, Practice and Problems - organized by Glinda at New Delhi in March, 1989.

Professor Ramesh Kumar delivered talks on a) "Diagnosis of and vaccination against typhoid fever" at the International Paediatric Update held at A.I.I.M.S. in December 1988 b) was invited to discuss "Diagnosis of typhoid fever" at the Indo-French Colloquium held at National Institute of Immunology in February 1989.

Dr. U. Gupta participated in a course on "Administrative procedures" February 1989, attended a Workshop on curriculum evaluation of U.G. students December 1989, participated in a seminar on "Current developments in medical education, January 1989, and Workshop on Educational Planning & Examination October, 1988. She delivered lectures on rapid diagnosis of anaerobic infections" in a symposium held on "rapid diagnostic techniques in bacteriology in November, 1989 at Trivandrum and was also Invited to talk on "rapid diagnostic methods for infectious diseases" during the annual conference of Association of Microbiologists of India in February 1989 at Hissar.

Dr. R.A. Bhujwala was invited to present her work at the Government of India & UNICEF Communication plan for public education in sexually transmitted diseases meeting held in June '88 at India International Centre, New Delhi; was guest lecturer and panelist for 2 panels on Maternal and Perinatal Morbidity and Mortality, WHO workshop at Calcutta Feb., 1989; delivered a lecture on opportunistic infections in AIDS at Government of India-WHO workshop on Clinical Management of AIDS March 1989, New Delhi.

Dr. S. Broor gave a lecture on Immunological responses diagnostic and investigative procedures in viral infection during the 2nd summer symposium on Virology update held by (IADV) in Delhi in July 1988, was guest faculty for a lecture on epidemiology & diagnosis of congenital virus infections in a WHO sponsored course on Epidemiology at NICD in Feb. 1989.

Dr. S. Bhalla was invited to speak on "Human myiasis with a special reference to Nasopharyngeal myiasis" in the 2nd Symposium on "Vectors and Vector borne diseases" held at Trivandrum in 1988.

Short term training in virology was imparted to 8 participants from NEERI Pune, UCMS, and J.N.U.

One technician from Bhutan spent 2 weeks in parasitology to learn various parasitological techniques and one from Medical College Rohtak was given short term training in anaerobic bacteriology.

RESEARCH

Research Completed

Evaluation of dipstick ELISA for demonstration of Entamoeba histolytica antibody from clinical samples

A dipstick ELISA has been developed for rapid demonstration of antibody to E.histolytica in serum. 55 clinically suspected cases of amoebiasis were studied along with 59 controls. Results of dipstick ELISA were compared with IHA. A significant correlation was demonstrated in the results obtained by both the methods. Moreover the test was easy to perform and the entire assay could be completed within one hour.

Development and evaluation of capture ELISA for rubella IgM antibody

Rubella antigen was prepared by growing the virus in vero cells followed by concentration by ultracentrifugation. Antisera to rubella virus was raised in rabbits and IgM fraction was separated by DEAE column chromatography. This IgG fraction was conjugated with horse radish peroxidase. The optimal dilution of conjugate was titrated and capture ELISA was standardised. It was evaluated on 52 samples with commercial capture EIA kit from Northumbria biologicals UK. With both the kits the results were similar i.e. only 5 samples showed the presence of rubella IgM antibodies at 1:100 dilution. Of the five samples 4 were from children having congenital infections and one was from a pregnant mother with history of fever and rash.

Mycological study of dermatophytosis (D) in some Delhi hospitals

D. is more common in adult males. Commonest clinical manifestation is tinea corporis (40.9%), followed by tinea cruris (23.7%) and tinea unguinum (15.1%). Commonest agent isolated was *T. rubrum* (55.2%). Fluffy variety could be associated with chronic D. Other isolates were *T. violaceum* (13.6%), *T. mentagrophytes* (8.1%) and *E. floccosum* (5.2%). High rate of isolation of *T. violaceum* is first time reported from this part of country. Infection with *Microsporum* is extremely rare.

Morphological variation of *T. rubrum* isolated from clinical specimens

A total of 153 *T. rubrum* were isolated from dermatophytosis in one year. Four main cultural forms were observed a) fluffy b) granular c) velvety and d) "y" isolates. Fluffy variety was isolated mainly from chronic infection. Significance of other varieties could not be ascertained.

Invitro antibiotic susceptibility of *T. rubrum* isolated from clinical specimens

78 isolates of *T. rubrum* have been studied. Majority of isolates (86%) are sensitive to griseofulvin upto concentration of 0.7 ug/ml. 14% of isolates were sensitive to a higher concentration of antibiotics. True resistance has not been seen in any of the isolates.

Use of affinity purified heterologous antibodies in an ELISA for the detection of *Entamoeba histolytica* in clinical specimens (G.E. Microbiol.)

Effect of *Giardia* infection upon nutritional status of preschool children (G.E., Microbiol)

Epidemiology of intestinal parasitic infection in a suburban area of Delhi (G.E., Microbiol)

Bacteriological study of pyodermas with special emphasis on anaerobic bacteria. (Dermat.Microbiol)

Role of Campylobacter jejuni in childhood diarrhea (Ped.,Microbiol)

Etiological role of fungus causing skin infection in rural area (Com. Med., Microbiol)

Research Continuing

Pseudomonas aeruginosa (PA)

Work on PA continued during the year. The new set of 9 indicator strains (I.S.) for epidemiological typing of PA was evaluated against the existing set in the country of 12 I.S. and other sets used in the world. The set of 9 I.S. developed at A.I.I.M.S. was found to be more discriminatory, stable and reproducible. From January 1989 this set is being used by different workers in the country for epidemiological studies on PA. Almost 40% of the isolates have become resistant to Gentamycin as against about 10% a decade ago. The development of resistance is plasmid mediated.

Active immunization against Pseudomonas aeruginosa

Number of vaccines, e.g. autoclaved killed suspension, polyvalent immuno types killed suspension, surface component polyvalent vaccine, heptavalent lipopolysaccharide, original endotoxin vaccine and extra cellular saline vaccine were tried on experimental model. Extra cellular saline vaccine of a Polyvalent immuno type has been found to be significantly protective (p value = 0.001). Attempts are being made to use this vaccine before and after the establishment of infection.

Development of dot ELISA for detection of antibodies to Mycobacterium tuberculosis

A multi-dot-immuno-blot assay using locally

available nitrocellulose paper strips was applied on 42 sera from bacteriologically confirmed tuberculosis cases, 44 sera from matched controls and 22 cord blood samples against MSE antigen and using protein A conjugated with HRP and 4-chloro-1-naphthol as substrate. Dot ELISA showed positivity in 41 of the 43 confirmed tuberculosis cases, 31.8% of healthy adults and 27.3% of cord blood samples at a dilution of 1:100.

Detection of mycobacterial antigen using ELISA Test

ELISA Test was standardized using sonicated BCG antigen with commercially available anti BCG serum and its HRP conjugate for detection of antigen. Subsequently sera from proven cases of tuberculosis and healthy controls were tested both undiluted and in 1:2 dilutions. 203 sera from the bacteriology proved patients, clinically suspected, patients and healthy controls were tested. 81.75% of the proven cases of Tuberculosis were found to be positive. 5.4% of the healthy controls were also found positive for the presence of antigen. Further standardization of the ELISA is necessary, the use of undiluted sera seems to be undesirable.

SAFA Test

Attempts were continued to further standardize the SAFA Test. At the moment the SAFA test using MSE antigen approximately gives 80% positivity in tuberculous patients as against about 10% positivity in absolutely healthy controls. Attempts are being made to increase the sensitivity and specificity.

Hospital epidemiology

Epidemiology of hospital infection continued to be studied during the period under review. A total number of 7403 planned clean operations were performed at A.I.I.M.S. Hospital (excluding Centres). 179 got infected resulting in an overall incidence of 2.41%. About 60% of the total infections were caused by P.aeruginosa, Klebsiella sp. and Staph.aureus; each responsible for 20.8%, 20.8% and 19.3% respectively.

The rest of the 40% infections were primarily caused by E.coli and Enterobactor. The Pseudomonas aeruginosa and Klebsiella sp. were found to be resistant to almost all the commonly used antimicrobial agents. Newer cephalosporines and quinolones were found to be more useful in these infections. Most of the resistance was found to be plasmid mediated.

Immunodiagnosis of typhoid fever

The ELISA for the detection of Vi antigen in the urine in patients of typhoid fever continued to be tested in larger number of patients and controls. The test was modified during the year under review to employ monoclonal anti Vi antibodies raised in our own laboratory. The results based upon testing patients of typhoid fever and controls give a sensitivity of 74% and specificity of 97%. The studies are in progress to further improve the sensitivity by including 'O' antigen demonstration in our assay.

Production of monoclonal antibodies for the serotyping of Salmonella

We have produced H-a and H-b monoclonal antibodies in addition to monoclonal antibodies against Vi, H-d and O-9 antigens reported in the previous year. The remaining antibodies will be produced in the coming year to complete the set of monoclonal antibodies required for serotyping of commonly isolated Salmonella organisms in this country.

Seroepidemiology of Malaria

We continued to apply serological tool to assess malaria transmission in two PHCs of Ghaziabad District of U.P. Even though there was some difference between the two PHCs based on parasitological evidence, serology failed to detect any difference. The study underscores the superiority of serology, because of its higher sensitivity, over other parameters to measure malaria transmission in a community.

Serodiagnosis of hydatid disease

IHA test for demonstration of antibody to *Echinococcus granulosus* is being used to screen samples of different age and sex groups. An effort will be made to correlate serology with clinical and ultrasound observations. 44 sera have been studied till now and the results are to be analysed.

Immunology of filariasis

An association, between antigen specific cellular unresponsiveness and lack of IL-2 production in patients with antigenemia or microfilaremia, shown in our previous study, was further studied by using IL-2 and testing the ability of the peripheral blood mononuclear cells to lymphoproliferative response to antigen derived from third stage infective larvae, L-3. It was shown that the unresponsiveness to filarial antigen is reversible by IL-2 and this is restricted by class II antigen.

Immunology of Intracranial tumours

Peripheral blood lymphocytes shown by markers for helper and suppressor or cytotoxic T-cells, vary considerably from one patient with brain tumour to another. Similarly, the expression of class II antigens by tumour cells vary from one to another. A variation in expression of class II antigens by the tissue of patient with various tumour reflect an association between HLA and disease.

Electrophoretic studies for identification of sibling species of Mosquitoes

Live adult mosquitoes were collected from different localities and are being maintained under laboratory conditions. Homogenates were prepared from these mosquitoes (adult as well as larvae) by grinding the individual specimens in a grinding solution. Filter paper vicks were used to absorb the mosquito homogenate and then placed in the horizontal slit in the gel. The proteins contained in the homogenate were

subjected to electrophoresis. After electrophoresis gels were stained for different enzymes using substrates specific for that particular enzyme. The *Aedes aegypti* colony is being maintained in the laboratory and the lysates from these mosquitoes were used as standard. Efforts will be made to identify different sibling species of mosquitoes prevalent in Delhi area.

C.trachomatis in pelvic inflammatory disease - antigen and antibody detection

Antigen detection by ELISA and antibody detection by immunoperoxidase test has been standardised. Over 200 cases of pelvic inflammatory diseases have been evaluated and 55% are found to be positive for *Cl.trachomatis*. A fortnights therapy with Doxycycline eradicated the infection from majority of the cases and made them symptom free.

Cloning of HSV DNA fragments by recombinant DNA technique and use of cloned DNA to detect HSV-DNA in human cervical biopsies by DNA-DNA hybridization

Biopsies from 115 patients with cervical cancer and 42 patients with cervical dysplasia/chronic cervicitis were analysed for the presence of HPV-16 and 18 DNA and HSV-2 Bgl II N fragment DNA by Southern blot hybridization and Dot blot hybridization under non-stringent and highly stringent conditions. 82.6% biopsies from cervical cancer had HPV-16 DNA. 15.7% of these biopsies also contained HPV 18-DNA, HSV-2 Bgl II N fragment sequences were present in 12.2% of these biopsies. In contrast, only 28.6% biopsies from chronic cervicitis and cervical dysplasia had HPV DNA and 11.9% had HSV II sequences. Cervical scrapings from 90 women attending Gynaecology out patients for ailments other than malignancy of genital tract were examined for the presence of HPV-DNA by dot blot hybridization. 5.5% samples were positive for HPV 16 & 18.

Screening of cervical cancer biopsy tissues for evidence of human papilloma virus 16 (HPV-16) and 18 (HPV-18) DNA by DNA-DNA hybridization

Biopsies from 166 patients with cervical lesions were collected. DNA was extracted from all the biopsies and digested with Bam H-1/EcoR-1 before electrophoresis and transferring onto nylon membrane. HPV-6, 11, 16, 18, 31, 33 & 35 DNAs were made vector free with specific restriction endonucleases and nick, translated in the presence of 32 PdCTP and TTP to the specific activity of approximately 1×10^8 CPM/ μ g DNA.

Southern blot hybridization revealed the presence of HPV DNA in 86/110 (78.2%) biopsies from patients with malignant lesions of cervix and in 13/56 (23.2%) biopsies from non-malignant cervical lesions.

By dot blot assay 53/70 (75.7%) biopsies from patients with malignant lesions. and 7/31 (22.6%) biopsies from non malignant lesions had HPV-DNA sequences.

CDNA cloning of human rotavirus gene segments and their use in detection and characterization of human rotavirus infection

The project was initiated in March 1988. During the current year we propagated all the 5 serotypes of human rotavirus in MA 104 cells to a high titre. RNA was extracted from these tissue culture grown viruses. 310 stool samples were collected from children <5 years age who presented to be hospital with acute diarrhoea. Rotavirus was detected in 38 out of 310 stool samples by direct ELISA. RNA migration pattern of 30 samples was studied by PAGE. Recombinant plasmid containing cloned cDNA of SA-11 gene segment 6 was obtained from Dr. Mary Estes. Dot blot hybridization using 32 p labled gene 6 probe was done in 76 samples. Most of the samples which were positive by ELISA were also positive by Dot blot hybridization. C-DNA cloning from SA-11 rotavirus RNA is in progress.

Role of Rubella and CMV in congenital infections

A total of 85 children with congenital malformations or delayed milestones or other evidences of congenital infections were investigated. Rubella IgM and CMV IgM antibodies were tested in their sera by mu capture ELISA. CMV IgM antibodies were detected in 22 of 85 samples tested while rubella IgM antibodies were detected in 3 out of 63 samples. The work is being extended to the study of rubella specific IgM and CMV specific IgM antibodies in all new born children with raised IgM levels.

Immunological study of bronchopulmonary Aspergillosis (Med., Microbiol)

Serodiagnosis of Chorioretinitis (Microbiol, RPC)

Extent and nature of small bowel microflora in children with persistent diarrhoea and the effect of an antibiotic intervention on its clinical outcome (Paed. Microbiol.) WHO Project.

Acute respiratory infectious (ARI) - A hospital based study on etiology in the urban population of Delhi (Paed. Microbiol)

Bacteriology in human biliary tract disease and its correlation with intestinal microflora (Surg., Microbiol., G.E.)

"Dilated cardiomyopathy in India, clinical immunological, virological and morphological markers and role of beta blockers in long term effects on morbidity and mortality" (CTC. Microbiol, Path)

Chloramphenicol alone versus chloramphenicol plus penicillin for pyogenic meningitis in children (Paed. Microbiol)

ELISA for detection of IgM antibodies and for diagnosis of acute acquired toxoplasmosis

Effect of ascaris infection on growth of children
(G.E., Microbiol)

Evaluation of direct gas liquid chromatography of CSF
in rapid diagnosis of non acid fast bacterial
meningitis (Microbiol.. Rep. Biol)

New Research

1. Development of immunodiagnostic tools for detection of Rotavirus and E.coli diarrhoea in children.
2. Use of DNA-DNA hybridization for the detection of diarrhoeagenic E.coli in children with special emphasis on enterotoxigenic E.coli employing non-radioactive probes.
3. Gold labelled reagents for the detection of Vi antigen in the urine of typhoid fever patients as a simple immunodiagnostic tool.
4. Prevalence of Campylobacter pylori in chronic gastritis
5. Pattern of bacterial infection during febrile episodes in children with acute lymphoblastic leukemia .
6. Enzyme linked Immunosorbent assay (ELISA) for determining the sero prevalence of Strongyloides stercoralis infection in Kumaon.
7. Isoenzyme studies on Phlebotomus sand flies (Diptera Psychodides).
8. Investigation for oncogene(s) in cervical cancer and its relation to Herpes simplex and human papilloma viruses.

Significant Events

Prof. Shriniwas was elected member of the council and honorary treasurer of the National Academy of Medical Sciences; appointed as member of the Scientific Advisory Group of Publication & Information Division of I.C.M.R., member expert group of Indian Journal of Medical Research, member AIDS committee of A.I.I.M.S, member of Career Development committee of A.I.I.M.S., expert member of National Board of Examinations in Microbiology, inspector on behalf of Medical Council of India for recognition of postgraduate courses and the Departments of Microbiology in different medical colleges, member of the Core Committee on Dissemination of Scientific Information, I.C.M.R., member of the Commission for Scientific and Technical Terminology of Ministry of Human Resources & Development. He continues to be: member International Advisory Board of IMBEM, Greece, member Governing Body of I.C.M.R., member Scientific Advisory Committee, of Regional Medical Research Centre for Tribals, Jabalpur, member Scientific Advisory Committee of National Institute of Health, Hyderabad, and of Food and Drug Toxicology and Research Centre of N.I.N., Hyderabad, member Hospital Management Board of AllMS and Infection Control Committee of A.I.I.M.S. member Selection Committee of B.C. Roy Memorial Award Committee of Medical Council of India, I.C.M.R., Delhi University, U.P.S.C., and C.S.I.R., member of the Board of Studies of Himachal Pradesh University, Simla. member of the Homeopathy Pharmacology Committee of Government of India. He chaired the conferences/sessions/seminar/symposium on "The Management of Serious Infections - A New Direction - March, 1989, New Delhi; Zonal Conference of Indian Association of Microbiologists - Tamil Nadu & Pondicherry Chapter; Symposium on Diverse Microbial Infections at Rajah Muthiah Medical College & Hospital, Annamali University, Annamalai Nagar, Chitambaram, and 28th annual meeting of National Academy of Medical Sciences (India), Calcutta - January 1989.

Professor Ramesh Kumar organised an exhibition on

"Prevention is better than cure " at the Institute as part of Institute day celebration during September 1988, continues to be the President of Indian Immunology Society, on the editorial board of Indian Journal of Malariology and on the Scientific advisory Committee of Malaria Research Institute.

Dr. A. Dasgupta continues to be a member of the Advisory Board of the Space Research Centre and a member of the Editorial board of the Indian Journal of Pathology and Microbiology, presented a paper in the International Congress for Tropical Medicine, held at Amsterdam; was invited to Imperial College, London School of Hygiene and Tropical Medicine, and National Institute for Medical Research, London, in connection with work on 'gene cloning in filariasis'.

Dr. R.A. Bhujwala has become in Incharge of a separate Department of Laboratory Medicine.

Dr. Pradeep Seth went to National Cancer Institute, Bethesda, USA on Fogarty International Fellowship for 5 weeks, was invited as chief guest in the 2nd summer symposium on Virology update held by the Indian Association of Dermatologists Venereologists and Leprologists in Delhi on July 88, invited for a lecture on "Role of viruses in cervical cancer but the Department of Infectious diseases at MD Anderson Hospital and Tumor Institute, Houston, Texas USA Oct. 1988., Viruses and cervical cancer at Fred Hutchinson Cancer Centre, Seattle, Washington, USA Oct. 1988., Viruses and Cervical cancer in Department of Microbiology and Immunology School of Medicine, University of Southern Illinois, Springfields, Illinois, USA in Oct. 1988. He is a member of the Advisory Council of Centre for Biochemicals, (CSIR) Delhi, Research Advisory Committee of National Institute of Cholera & Enteric Diseases, (ICMR), Calcutta, Program Advisory Committee of Scientific & Engineering Research Council of Department of Science and Technology, Ministry of Science and Technology, Research Advisory Council of National Environmental Engineering Research Institute (CSIR), Nagpur, Member of Selection Committees of CSIR NII, Member of Research

Committee of AIIMS, Member of AIDS - Control Committee, AIIMS.

Dr. J.C. Samantaray presented a paper "Dipstick ELISA for detection of antibodies in hydatid disease " in XII International Congress for Tropical Medicine and Malaria, 1988, Amsterdam, The Netherlands. Presented a critical review "Immunodiagnosis of Amoebiasis" at the round table session at Indo-French Colloquium on "Recent advances on Life Sciences and Vaccinology" held at NII, New Delhi from 5-10 Feb, 1989.

Dr. Usha Gupta participated in the 3rd European Congress on anaerobic bacteria and infections held in Munich (Federal Republic of Germany) March, 1989.; continues to be the Hony. Secretary of the Indian Association of Mycoplasmologists, was nominated as Vice President of IAM for 1990-91; chaired a session during the annual congress of the Indian Asssocation of Microbiologists at Trivandrum in November 1988.

Dr. N. Manjunath participated in the annual Herpes virus meet held at Irvine, California, U.S.A. in August 1988.

HOSPITAL SERVICES

Mycobacteriology

SAFA test	350
Endometrial biopsy	1517
Urine	621
CSF	275
Bronchial aspirate & sputum	197
Pus	256
Genital & throad swabs, brain abscess	50
Lymph glands, skin biopsy	62
Bone aspirate, synovial fluid, pericardial fluid, ascitic fluid	159
Gastric lavage	10
Antimicrobial sensitivity	7
Bone marrow	28
Smear	1843
Pleural fluid	178

Samples for <i>P. aeruginosa</i>	1682
<i>Aeruginosa</i> typing	1681
Antimicrobial sensitivity	1681

Hospital associated infection control programme

Environmental status (Settle plate method)	970
Clinical specimen (Pus/CSF/Swab)	10709

Anaerobic bacteriology

Samples cultured for anaerobic bacteria - 675
 Identification and sensitivity tests - 125.
 Culture for *Campylobacter* - 30
 Anaerobic strains supplied to other institutions - 10.

Immunology laboratory

VDRL	8301
WIDAL	2662
ASLO	389
Rose Waaler	32
Paul Bunnell	21
Sterility test	72

 TOTAL 11477

Parasitology lab

Routine parasitological investigation: (Stool for ova/cyst, by concentration method, blood film or malaria parasite, microfibrina, LD body etc) - 1931

Special parasitological investigation:

a) <i>Toxoplasma</i> serology	- 3247
b) Amoebic serology	- 340
c) Hydatid serology	- 81
d) Casoni's test	- 39

Total	- 3707

Entomology

Maggots for identification	14
House dust samples	9
Insects for identification	17
Specimens received from other Instt.	7

Virology lab

The following investigations were done.

	No. of samples
HSV serology	442
CMV	97
Rubella serology	597
Measles serology	138
Virus isolation	233

In addition two new tests were started in the laboratory

a. Rubella IgM (ELISA)	88
b. CMV IGM (ELISA)	100

We also investigated an epidemic of acute haemorrhagic conjunctivitis in July 1988 Out of the total of 47 samples 10 viruses have been isolated. They have been sent to CDC for further identification as they were not neutralised by Coxackie A 24 or EV 70 antisera. Immunofluorescence was done on 30 samples of which 12 were found to be strongly reactive with Cocksackie A 24 antisera.

A samll out break of rubella in pregnant women was investigated from April to June 1988 by detection of rubella specific IgM antibodies.

Tissue culture cell lines maintained Vero BGMK, BHK-21, HLF.

Routine bacteriology laboratory

Table I.

Nature of Sample	Aerobi- culture	Anaerobic culture(TGB)	Sensitivity	Smear
Urine	23097	-	4408	-
Sputum	3701	3701	1740	1100
Vaginal/Swab	351	351	257	-
C.S.F.	3674	3674	431	674
Pus	4063	4063	3901	1100
Blood	6873	-	1392	100
Stool	763	-	37	-
Sterility	1593	-	-	-
Water	728	-	-	-
Listeria culture	1125	-	-	-
Total	45968	11789	12166	5974

Table II.

Nature of sample	Deposit	Selenite broth	Latex Agg.
Urine	3500	-	-
C.S.F.	-	-	90
Stool	-	763	-
Total	3500	763	90

Total = I & II table = 80250.

864 specimens were processed in mycology laboratory.

C.S.F.	310
Sputum	153
Br. lavage	23

Blood	111
Stool	6
Pus	51
Bone marrow	6
Hair	2
Urine	11
Ascitic fluid	16
Skin	36
Nail	17
Th. Swab	47
Vag. Swab	6
Tissue	55
Outside samples	7

Total	864

AIDS reference centre:

a) Serological testing:

Total samples received	: 1687
Samples positive by ELISA	: 49
Samples positive by Western blot	: 33

b) Virus isolation

Total samples received for virus isolation	: 7
Virus isolated	: 5

Community Services and Education

Dr. P. Seth gave a talk on AIDS on AIR and on Doordarshan.

PUBLICATIONS

1. Bhujwala R.A. Rapid diagnosis of meningitis Indian Pediatrics. 1988; 25: 315-318.
2. Gupta U. Bacteriological study of nonspecific male genital ulcers with special reference to chlamydia and mycoplasma (Abst) Isr. J. Med. Scs. Suppl. 1987; S23: 527.

3. Raju G.S., Broor S., Singh V., Mehta S.K. Fulminant viral hepatitis: Indian experience J. Gastroenterol and Hepatol. 1989; 4: 169-173
4. Seth P., Kaur H., Kaur R., Verma K. and Manjunath N. Correlation of histologic types of carcinoma of the uterine cervix and human papilloma virus and Herpes simplex virus type 2 DNA sequences in the uterine cervical biopsies Arch. Virol. 1988; 102: 141-146.
5. Singh V., Broor S., Mehta S., Mehta S.K. Clinical and epidemiological features of acute gastroenteritis associated with human rotavirus subgroup 1 and 2 in Northern India. Indian J. Gastroenterol 1989; 8: 23-25.

Book

Hand book of Medical Entomology (2nd Edition) Ed: Nayyar, E Samantāray J C and Bhalla S AIIMS, Kalpana Printing House 1988.

Chapters in book

1. Dasgupta A., Bala S., and Dutta S. Interleukin-2 assoicated with antigen-specific cellular unresponsiveness in patient with Wuchereria bancrofti infections; International Congress for tropical medicine and malaria (abstract), Editor- PA Kager, and A.M. Polderman; Excerpta Medica, International Congress Series 810. 1988: 23B.
2. Jayashree S., Bhan M.K., Raj P. and Kumar R. Naturally attenuated neonatal rotavirus strain: A new vaccine candidate? Proc. UCLA Symposia on Mol. Cell. Biol., Vol 84 "Technological Advances in Vaccine Development. Editor Laurence Lasky. 1988; pp 175-181, Alan R Liss Inc. New York.

Collaborative publications	16
Papers presented at scientific meetings	12
Papers accepted for publication	4

Chapter 6.12

PATHOLOGY

FACULTY

Professor and Head	S.Roy (Neurosciences)
Professor	N.C.Nayak
Additional Professors	K.Verma(Cytopathology-(IRCH) M.Mathur P.Chopra (C.N Centre)
Associate Professors	A.Nanu (Blood Bank) R.Dawar K.Kapila(Cytopathology) S.K.Panda
Assistant Professors	M.Vijayaraghavan (IRCH) C.Sarkar(Neurosciences) M.K.Singh A.K.Karak R.Safaya S.Datta Gupta

Dr.N.C.Nayak is on leave of absence for assignment in kuwait University

The Division of Haematology and Clinical Pathology have been converted into separate Departments of Haematology and Department of Laboratory Medicine respectively.

EDUCATION

Continuing Medical Education

Dr.S.Roy participated as faculty in the second course in Neurobiology for postgraduates in Clinical Neurosciences sponsored by the DST held at AIIMS,

chaired a seminar on "Cerebral edema" and spoke on "Pathogenesis and pathology of brain edema": took a lecture and demonstration on "The use of electron microscopy in diseases of the nervous system" lecture on "Effect of neonatal undernutrition on neuromuscular system" in the Indo-Soviet symposium on Developmental Neurobiology and Neural Transplant.

Dr.U.N.Bhuyan delivered a lecture on "Immunopathology of Glomerulonephritis" in "Update Nephrology" at Sanjay Gandhi PGIMA, Lucknow, March'89.

Dr.K.Verma gave a lecture on "Cytology today and tomorrow" in the current status programme in Pathology, conducted by Nizam's Institute, Hyderabad, March' 89 ; took part in a panel discussion on "Fine needle aspiration cytology" in International symposium on environment, genetics and thyroid disorders by Thyroid Association of India, New Delhi-March'89; participated in a WHO assisted workshop on "Management training in MBBS course" at National Institute of Health and Family Welfare, New Delhi-August'88 ; seminar on "Computers in Medicine" organised by Indian Medical Association and Welcome Group, New Delhi-May'88; workshop on "Educational Planning and Examinations" organised by AIIMS at Simla.

Dr. M.Mathur participated and took lectures/practical demonstration in DST sponsored second course in Neurobiology for postgraduates in clinical Neurosciences held at AIIMS: in workshop on "Primate management and experimentation" held at AIIMS: in International workshop on Recent Advances in Neonatal Surgery and Intersex disorder held at AIIMS.

Dr.K.Kapila delivered lectures on "Role of aspiration cytology in the diagnosis and management of breast lesions" in the meeting of the Ahmedabad Association of Pathologists held at Ahmedabad in Sept.'88: on "Salivary gland tumors - pathology and role of aspiration cytology" in the course on 'Surgery for cancers of oral cavity, oropharynx and salivary glands' held at AIIMS in Sept.,88: participated as faculty in the workshop on "Fine needle aspiration

cytology" held at St. John's Medical College, Bangalore, Dec., 1988 and delivered talks on "Basic aspects of diagnosing breast lesion by fine needle aspiration cytology" and "The use of immunocytochemistry and ultrastructural examination in FNAC in the characterisation of tumors"; participated in the slide demonstration on Immunocytochemistry; workshop on "Educational planning and examinations" organised by AIIMS at Simla - Oct.'88.

Dr. Chitra Sarkar participated as a faculty in the Second Course in Neurobiology for postgraduates in Clinical Neurosciences, took part in a seminar on "Neuroendocrinology" and spoke on "Pathology and pathogenesis of neuroendocrine tumors"; took a lecture and demonstration on "The use of immunohistochemistry in diseases of the nervous system"; participated in the Indo-Soviet symposium on Developmental Neurobiology and Neural Transplant and spoke on "Effect of neonatal undernutrition on the brain"; was invited by the Indian Academy of Sciences to give a lecture on "Recent advances in Neurooncology" held at Calcutta in October 1988.

In-service training was imparted to several medical and paramedical personnel in Haematology, Cytopathology, Histopathology and Neuropathology.

RESEARCH

Research Completed

Electron microscopic studies and intermediate filament typing in the interpretation of material obtained by fine needle aspiration-in round cell tumors of childhood.

Aspirated material from 26 pediatric patients diagnosed as round cell tumors on light microscopy was subjected for ultrastructural examination and demonstration of the intermediate filaments to Desmin, Vimentin, Neuron specific enolase, cytokeratin, and leucocyte common antigen. In 17 of the 26 patients, where a morphologic diagnosis was made on light

microscopy, immunostaining and ultrastructural examination helped to corroborate the diagnosis in 6 and 11 cases respectively. In the remaining 9 cases, which could not be classified on light microscopy, immunostaining rendered the diagnosis in three while ultrastructural examination helped in two cases. One case of neuroblastoma was positive by both the techniques. Thus, 4 of the 9 cases (44.4%) could be categorised. It is concluded that both these techniques, being expensive and time consuming, should be judiciously used in the diagnosis of undifferentiated round cell tumors.

Diagnostic problems in aspirates from mucoepidermoid carcinoma.

The morphologic findings in fine needle aspirates of 18 cases of primary mucoepidermoid carcinoma of the salivary gland on histology were reviewed and correlated with the tissue sections. The diagnostic accuracy was enhanced to 50% when all the three components viz. intermediate, epidermoid and mucus producing cells are identified. The reasons for diagnostic failure were total absence of any atypia or cystic change in the tumor.

Fine needle aspiration(FNA) diagnosis of cysticercus cellulosae (CC) in soft tissue swellings

The cytomorphologic diagnostic criteria for CC in FNA were defined. Retrospective analysis of FNA from 62 cases with subcutaneous swellings from various sites determined the parasite in 25 cases. Histologic material was available in 29 cases where a cyto-histologic correlation was done.

Cervical dysplasia and their biologic behaviour-a cytologic study

Fifty three women with cervical dysplasia were followed up for a period ranging from one to 18 months. They were classified as mild dysplasia-18 moderate dysplasia-22, and severe dysplasia-13. 78% of moderate and 15% of severe dysplasia regressed while 30% of

severe dysplasia progressed. 69% of the dysplasia which regresses were associated with inflammation.

"Immunohistochemical localization of keratin proteins in tumour diagnosis".

Significant findings were as follows: (i) Commercially available DAKO polyclonal rabbit antiserum to human keratin gave good results on routine paraffin embedded tissue. (ii) It was useful in distinguishing squamous cell carcinomas (23) transitional cell carcinomas (6) and mesotheliomas (1) which stained positive, from lymphomas and mesenchymal tumours (10 and 6 cases respectively) which stained negative for keratin. (iii) Adenocarcinomas (21) showed variable staining, from negative (13) to faintly positive (7) to strongly positive (1). (iv) As the only keratin positive adenocarcinoma was an infiltrating duct carcinoma of the breast 12 other breast carcinomas were stained. For comparison, 7 cystadenocarcinomas of the ovary were also studied. (v) One of 7 ovarian adenocarcinomas and 3 of 12 breast carcinomas stained definitely positive for keratin. Thus keratin stain on adenocarcinomas does not appear to be of diagnostic help if paraffin embedded tissue is used.

Keratin stain was most useful in distinguishing poorly differentiated carcinomas (8 of 12 were strongly positive) from histiocytic lymphomas which were almost invariably negative.

Other tumours which were found to be negative for keratin were melanomas (4) pheochromocytoma (1), astrocytoma (1) and benign nerve sheath tumour (1).

Detection of early myocardial ischemia - an experimental study in rats. (Anat, CTC, Path)

Quantitative histopathological and ultrastructural evaluation of congestive heart failure of unknown origin employing endomyocardial biopsy. (CTC, Path)

Persistent atrial standstill - A rare electro - physiological abnormality : (CTC, Path)

Endomyocardial biopsy in patients with ventricular tachyarrhythmias of unexplained etiology. (CTC, Path)

Endomyocardial fibrosis - An endomyocardial biopsy study (CTC, Path)

Immunoelectron microscopy and culture of pituitary adenomas (Endocrin, NSC, Path)

Corpora amylacea: An immunohistochemical, ultrastructural, immunoelectron microscopic and morphometric study: (NSC, Path)

Analysis of childhood tumors with special reference to tumors of neural crest origin: (NSC, Path)

Ultrastructural study of blood vessels in localized chronic infections: Their relationship to cerebral edema: (NSC, Path)

Prevalence of gastroduodenal inflammation, erosion and ulceration in patients with rheumatoid arthritis on aspirin, and naproxen: (GE, Path)

Research Continuing

A study on the frequency and nature of preneoplastic hepatocellular lesions in human and animal livers.

Of 45 livers examined at autopsy (accidental deaths) have revealed the presence of foci of altered hepatocytes in 14. The significance of these changes is not understood and more cases are to be evaluated to determine their nature and frequency. In addition to sections of the liver from autopsies, material has been collected from male Wistar rats administered Dimethyl nitrosamine (DMN) and aflatoxin (AFB1). Liver biopsies from Rhesus monkeys administered AFB1 have been collected. The material from animal experiments have been collected in Isopentane at - 70 C. for histochemical studies in addition to routine processing and electronmicroscopy. Two rats given DMN showed gross hepatocellular carcinomas. The cases are being screened for the presence of preneoplastic hepatocytes.

Toxic liver injury

Long term studies on the effect of low dose aflatoxin (AFB1) intoxication in Rhesus monkeys and rats are being conducted for last several years to study the effect of low protein diet, microsomal enzyme induction and cell regeneration on AFB1 induced liver injury and hepatocarcinogenesis. It has been shown that induction of microsomal enzyme by agents like phenobarbitone during dosing with AFB1 retards hepatocarcinogenesis, whereas its administration during the post dosing phase acts as a promoter. Studies on other interactions are continued.

Poly albumin (PHSA) receptor on hepatocytes in health and disease

Role of polymerised human serum albumin in attachment of hepatitis B virus for initiation of infection is being investigated. The presence of PHSA receptor on HBV correlates directly with infectivity. Two kinds of receptor for PHSA have been recognised with a different affinity constant. Further work to characterise the receptors is in progress.

Study of experimental cerebral malaria with particular reference to blood-brain barrier and platelet function.

Plasmodium knowlesi was injected into 4 monkeys and they were sacrificed on the first, third, fifth and seventh day of parasitaemia. Normal monkey brain was used as control. The brain is being examined by light and electron microscopy. Fresh tissue is being collected for alkaline phosphatase stain at light microscopy level. Attempts are being made to standardize the techniques of horseradish peroxidase and ruthenium red localization at ultrastructural level.

Diagnosis and subtyping of malignant lymphomas-value of aspiration biopsy cytology. (FNAC)

Prospective studies are continuing to see the accuracy of subtyping of malignant lymphomas. So far we have studied 120 cases of lymphomas by FNAC and histologic material is available in 50 of these. Analysis of the data will be done after completion of 100 cases.

Electron microscopic studies and intermediate filament typing in malignant mesenchymal tumors.

Case collection and standardisation of the technique is complete. Analysis of the data is being done.

Neurone specific enolase (NSE) in medullary carcinoma.

NSE has been done in a few cases. More cases are to be collected.

Role of fine needle aspiration cytology (FNAC) in patients with acute lymphoblastic leukemia (ALL).

New cases of ALL and those in remission are being collected. FNAC of the testis, lymphnodes and soft tissue swelling if present is examined for leukemic infiltrate. Cerebrospinal fluid is also being examined, for leukemic deposits.

Epithelial mucins in various disorders of gastrointestinal tract: (GE, Path)

Gastropathies in portal hypertension: (GE, Path)

Endoscopic, radionucleotide and histological evaluation of intrathoracic stomach. (Nuc Med, Path, Surg)

Intestinal biopsy in cases of chronic diarrhoea and malabsorption (Path, Pediat)

Importance of vascular involvement in the prognosis of ARF in children. (Nephrol, Path)

Autoantibodies in the diagnosis and pathogenesis of pemphigus vulgaris (Dermat, Path)

Dilated cardiomyopathy in India - Clinical immunological, Virological and morphological markers and role of beta blockers in long term effect on morbidity and mortality: (CTC, Path)

Histological and immunohistochemical characteristics of acute rheumatic myocarditis in man. A prospective endomyocardial biopsy study. (CTC, Path)

Evaluation of natural and artificially induced subcutaneous nodules in acute rheumatic fever. (CTC, Path)

Establishment of non-A, non-B (NANB) hepatitis specific B cell clones (G.E. Path).

Acute viral hepatitis : non-A, non-B (NANB) hepatitis in adults and vaccine trial on infants born of HBV carrier women : (Ob. & Gyn, Path, Pediat)

Clinico-pathological analysis of cases of polymyositis and dermatomyositis. (Med, Path)

Cell kinetics and vascular changes in human brain tumors : An in-vivo study. (NSC, Path)

Cell proliferation kinetic pattern of brain tumors: An in-vitro study. (NSC, Path)

Study of juvenile motor neuron disease. (NSC, Path)

New Research

1. Enzyme histochemistry and T cell markers in inflammatory muscle disorders and muscular dystrophy.
2. Paragangliomas - a diagnostic dilemma in fine needle aspirates.

3. Role of immunocytochemistry in the diagnosis of thyroid neoplasms.
4. Clinical down staging of carcinoma cervix by para-medical personel.
5. Localization of human papilloma virus in neoplastic and paraneoplastic lesions of uterine cervix by in-situ hybridisation technique..
6. Experimental induction of gastropathy related to portal hypertension in rats.
7. Gamma glutamyl transpeptidase pattern in carbon tetrachloride induced cirrhosis in rats.
8. A study on prevalance of campylobacter pylori in non-ulcer dyspepsia.
9. Activity and chronicity indices in diffuse proliferative lupus nephritis.
10. Hepatitis B associated glomerulonephritis in children and adults.
11. The nature of ballooning degeneration of hepatocytes - an experimental study.
12. Mucin histochemistry, lectin binding pattern and immunohistochemical localization of carcino embryonic antigen in adenocarcinomas of stomach, small intestine, colon and rectum.
13. Molecular hybridisation studies on hepatocellular carcinoma to study the role of hepatitis B virus infection (ICMR-German) - July 1989.
14. Indo-USSR ILTP project on viral hepatitis and indigenous drugs. Jan 1989.

15. Histopathological evaluation of endomyocardial biopsies and its correlation with immune complexes and heart reactive antibodies - A study of myocarditis/dilated cardiomyopathy.
16. Cardiac immune complexes, immunohistochemical characterisation and quantitation of mononuclear cells and evaluation of its role in diagnosis of lymphocytic myocarditis: An endomyocardial biopsy study.
17. Electron microscopic and immunohistochemical evaluation of early myocardial ischemia - an experimental study.
18. A study of immunologic parameters in infective endocarditis.
19. Role of aortic antigen in induction of experimental aortoarteritis.

AWARDS AND EVENTS

Distinctions, awards and honour

Dr. P.Chopra was awarded Amrut Mody Unichem Prize for 1988 for work on Cardiovascular pathology.

Dr. Rajiv Dhir, JR was awarded Saty Monga Award 1988 for best paper in immunocytochemistry by the Indian Academy of Cytologists.

Dr. S.Roy was conferred membership of the National Academy of Medical Sciences, India.

Significant Events

Dr. S.Roy was elected as a member of the editorial board of "Neurology India".

Dr.K. Verma was president of Indian Academy of Cytologists for the year 1988-89; continued as member of project advisory committee of Bhopal gas disaster

research centre, ICMR and scientific advisory committee of cytology research centre, New Delhi.

Dr. M.Mathur was invited to chair a session and present a paper at the "International symposium on agricultural and biological aspects of aflatoxin related health hazard held at Delhi University, March, 1989.

Dr. K.Kapila appointed member of the editorial board of i) Acta Cytologica; and ii) Journal of Cytology; continues as treasurer of the Indian Academy of Cytologists.

Dr. S.K.Panda participated in WHO workshop on Immune Electron Microscopy in hepatitis non-A, non-B infection at NIH Thailand, Bangkok.

Visiting Scientists

Dr. Sukriti Nag, Associate Prof. of Neuropathology, Queen's University, Kingston, Canada: talk on "Interesting and rare cases in Neuropathology".

Dr. Tilde Kline, Professor of Pathology, Thomas Jefferson University, Philadelphia, U.S.A. visited Cytology laboratory and delivered a lecture on "Fine needle aspiration of superficial masses".

Dr. J.K.Reddy, Professor of Pathology, North Western University Medical School, Chicago, Illinois visited the Department under the TOKTEN PROGRAMME. November and December 1988 he participated actively in the postgraduate teaching and research activities of the department and took the following seminars:

- (i) "Peroxisome proliferation and liver cancer: mechanisms and implications".
- (ii) Conversion of rat pancreas and liver: change in differentiation commitment;
- (iii) Urate oxidase cDNA cloning; Tissue specific expression and phylogenetic implications;

- (iv) "Pancreatic carcinogenesis; animal models" and
- (v) "Future of Pathology-Academic Pathology in particular".

HOSPITAL SERVICES

Surgical pathology specimens	19,795
Duplicate section	8,000
Special histopathological stains	6,000
Cytopathology	12,363
Frozen section	425
Autopsies	108
Electron microscopy specimens	779
Immunocytochemistry	108
Enzyme histochemistry (for muscle)	57
Immunofluorescence of kidney biopsies for diagnostic purpose	242
Other immunofluorescence studies	120
Serum complement	159
Antinuclear antibodies in serum samples	148
Urine sediment analysis	475

PUBLICATIONS

1. Bose S, Kapila K, Sarkar C and Verma K: Fine needle aspiration cytology of meningiomas with unusual presentations. Diagn. Cytopathol. 1988, 4: 258-261.

2. Murthy L, Kapila K and Verma K: Immunoperoxidase detection of carcinoembryonic antigen in fine needle aspirates of breast carcinoma. *Acta Cytol.* 1988, 32:60-62.
3. Panda SK, Dutta R, Gupta A, Zuckerman AJ, Nayak NC: The significance of maternal and infant serum antibody to hepatitis B virus core antigen in hepatitis B virus infection of infancy. *J. of Med. Virology* 1988, 24:343-349.
4. Rizvi TA, Mathur M and Nayak NC: Enhancement of aflatoxin B induced hepatocellular carcinogenesis in rat by partial hepatectomy. *Virch. Arch. Path. Series B.* 1989, 56:345-350.
5. Singh MK, Kapila K and Verma K: Chondrosarcoma-light microscopic and ultrastructural examination in fine needle aspirates. *Ind. J. Pathol. Microbiol.* 1988, 31:190-194.
6. Singh MK, Verma K and Kapila K: Value of aspiration cytology in diagnosis and subtyping of malignant lymphomas. *Ind. J. Med. Res.* 1988, 87:32-36.
7. Verma K and Kapila K: Fine needle aspiration cytology in pediatric oncology. *Ind. J. Pediatrics.* 1988, 55:403-407.

Collaborative publications

37

Chapter in Books

Malhotra KK, Bhuyan UN: Renal disease in the tropics; In "Diagnosis and Management of Renal Disease and Hypertension". Eds. Mandal AK, Jennette JC, Lea and Febiger, Philadelphia-1988, pp. 316-379.

Roy S: Pathological changes in aging brain. In: *Lectures in Neurobiology*. Ed. Tandon PN, Bijlani V and Wadhwa S. 1988, pp 58-61.

Chapter 6.13

PHARMACOLOGY

FACULTY

Professor and Head	N.K. Bhide
Professor	S.D. Seth
Additional Professors	H.H. Siddiqui J.N. Sharma J.K. Grover
Associate Professor	S.B. Lall
Assistant Professors	Y.K. Gupta V.L. Kumar K. Kishore

Dr. S.D. Seth took over as Head of the Department from March 21, 1989. Dr. N.K. Bhide is on extension for 2 years.

EDUCATION

Continuing Medical Education

Dr. S.D. Seth gave an invited talk at IIT, New Delhi on 'Drug delivery systems'; went to PGI, Chandigarh as a visiting Professor in March 1989 and delivered two lectures entitled, (1) "Calcium channel blockers in cardiovascular diseases" and (2) "Newer drug delivery systems".

Dr. H.H. Siddiqui gave a lecture on "Rational use of psychotropic substances" at the national workshop on "Rational use of psychotropic substances" January 1989 at A.I.I.M.S., and chaired the session on 'Advances in

Cefotoxamine' at the French Pharmaceutical Symposium February 1989 at New Delhi.

Dr. J.N. Sharma presented an invited paper entitled, "Sandhan Karani - A rapid wound healing plant of Valmiki Ramayan" in the IV International Conference on Ramayan, held in Vigyan Bhawan December 1988 and participated in the workshop on administration organised by A.I.I.M.S., 1988.

Dr. J.K. Grover delivered an invited lecture on "Analgesics and anti-inflammatory drugs" organised by Indian Medical Association, New Delhi (South Branch) in March 1989.; and participated in the following workshops organized by AIIMS: Medical education curriculum planning, held at Simla, 1988. Evaluation and assessment in undergraduate medical education, New Delhi December 1988. Current development in medical education at Simla January, 1989. Workshop on administration, New Delhi 1988.

Dr. S.B. Lall participated in "National seminar on Essential Drugs in Primary Health Care in India" held at National Institute of Public Co-operation and Child Development September 1988; "International Conference on Primary Health Care" held at New Delhi September 1988; "Continuing Medical Education in Clinical Pharmacology, at the Nizam's Institute of Medical Sciences, Hyderabad December 1988; French Pharmaceutical Symposium held in New Delhi on February 1989; Workshop on Administration organized by AIIMS, New Delhi and the Vth Annual Conference Cum Workshop on Pain held in New Delhi on February 1989.

Dr. Y.K. Gupta participated in workshop on "Medical Education and Curriculum Planning" at Simla October 1988; attended a seminar on "Current development in medical education, January 1989 at AIIMS, and participated in workshop on "Evaluation and assessment of undergraduate medical education" December 1988 AIIMS,; participated as faculty in DST sponsored, "Second course in neurobiology for postgraduates in clinical neurosciences" November 1988, New Delhi and delivered a lecture on "Central control of vomiting",

attended "8th annual conference of Indian Academy of Neurosciences, Chandigarh, March 1989, presented a paper entitled, "Central mechanisms of cisplatin induced vomiting" and an invited lectures on "Neurotransmitters in vomiting" under its CME programme. He attended French Pharmaceutical Symposium held in New Delhi February 1989.

Dr. Vijay Laxmi participated in the workshop on primate management and experimentation, held in November 1988 at AIIMS, Delhi; Indo-French Colloquium held in February 1989.

Dr. Kamal Kishore presented a paper entitled, "Oral berberine in Menorrhagia" in 1st Congress of Asian Federation of Clinical Pharmacologists held in November 1988 at Lucknow; participated in French pharmaceutical symposium held at New Delhi in February 1989.

RESEARCH

Research Completed

The hypocholesteraeamic, anti-inflammatory and general pharmacodynamic actions of Curcuma amada

The various extracts of the rhizome of this plant did not possess any hypocholesteraeamic and anti-inflammatory activity as mentioned in ancient literatures. The pharmacodynamic studies show hypotensive action which does not involve the CNS, autonomic ganglia, adrenergic neurones, adrenoreceptors, cholinceptor. The effect seems due to its direct cardiodepressant action.

Role of endogenous opioids and histamine in morphine induced emesis

The role of opioid and histaminergic system in morphine induced emesis was investigated in dogs. Morphine (25 ug I.C.V.) consistently evoked emesis which was fully accounted for by an action on CT zone (CTZ) as its ablation rendered animals refractory to

vomiting. Intraventricular pretreatment with opioid antagonist naloxone, histamine H_1 antagonist mepyramine and H_2 antagonist cimetidine and metiamide afforded protection to i.c.v. morphine emesis. The results suggest that both endogenous opioid and histamine are involved in morphine emesis. Naloxone in high doses (1000 ug, i.c.v.) elicited emesis which was not blocked by CTZ ablation.

Emetic profile of cisplatin in dogs

A well analysed animal model is essential to investigate the mechanism of cytotoxic drug induced emesis and to evaluate the drugs that can prevent it. The emetic activity of cisplatin has, therefore, been studied in dogs. This study shows a dose related emetic response with cisplatin ($r = 0.95$, $p < 0.001$). The results suggest that 3 mg/kg is a standard dose of cisplatin for emetic studies in dogs. With this dose a good correlation between latency period and weight of animals was observed ($r = 0.67$, $p < 0.05$). An observation period of 5 hour is adequate.

Effect of CTZ ablation on cisplatin induced emesis in dogs

CTZ ablation rendered the dogs refractory to 3 mg/kg (100% emetic dose and 6 mg/kg twice the 100% emetic dose) of cisplatin. Thus the integrity of the CTZ is essential for mediation of cisplatin induced emesis.

Effect of BRL - 43694, a noval 5-HT₃ receptor antagonist on cisplatin - induced emesis

The antiemetic efficacy of BRL - 43694 against cisplatin - induced emesis has been evaluated in dogs. Administration of BRL 43694 after cisplatin significantly decreased the emetic responses. BRL when injected IV & I.C.V. failed to afford any protection. It could not prevent apomorphine induced vomiting. The results show that BRL 43694 affords significant protection against cisplatin induced emesis in dogs. The mechanism of action is not clear but is unlikely to

be central or through interruption of the motor pathway of the emetic reflex.

Gastric dilatation and stasis : important side effects of cisplatin

Rats fasted overnight, then injected cisplatin and kept without food and water for 6 hours showed a dose related increase in gastric volume (GV) and weight of gastric content (WGC). A good correlation between GV and WGC was observed ($r = 0.70 < 0.001$). Exposure to 2 other emetogenic agents : apomorphine, for 1 hour and cyclophosphamide for 6 hrs. caused dose dependent increase in GV, thus, showing that gastric dilatation and stasis is not specific for cisplatin but may be a reflection of emetogenicity of the drugs. Gastrokinetic agents metoclopramide and dazopride did not decrease the gastric dilatation and stasis significantly in mice exposed to cisplatin for 6 hours. The persistence and refractoriness of gastric dilatation and stasis makes it an important side effect of cisplatin.

Effect of diethyldithiocarbamate on cisplatin-induced emesis in dogs

The antiemetic effect of diethyldithiocarbamate (DDTC) on cisplatin induced emesis was evaluated in dogs. All the doses of DDTC (25, 50, 100 and 200 ug/kg i.v.) afforded significant protection. The emesis induced by apomorphine was not prevented by DDTC. DDTC, a drug with minimum side effects is also known to protect against cisplatin induced nephrotoxicity and bone marrow toxicity without inhibiting the latter's antitumour response. It offers great potential as adjuvant drug with cisplatin therapy.

Effect of intracerebroventricularly administered angiotensin II on emetic reflex in dogs

This study shows that angiotensin II administered intracerebroventricularly failed to elicit emesis whereas the same delivered intravenously has been reported to produce vomiting. It is suggested that C.S.F. - Brain Barrier prevents access of i.c.v.

angiotensin II to its receptors in C.T.Z. which are otherwise accessible on i.v. administration.

Cholinergic, histaminergic and opioid analgesia in mice: A study on their inter dependence

Oxotremorine i.p. histamine i.c.v. morphine i.p. induced dose dependent analgesia in mice. Oxotremorine analgesia was blocked by atropine, mepyramine and naloxone. Histamine analgesia was blocked by mepyramine and naloxone but not by atropine. Naloxone completely blocked the morphine analgesia whereas atropine and mepyramine blocked it partially. Cimetidine did not block any analgesic action. This study shows that cholinergic, histaminergic and opioid analgesia are interrelated and suggests that it involves a common mediator neurotransmitter enkephalines.

DDT EXPOSURE

Work on estimation of DDT in human fat and human milk from Delhi area has been completed. Human body fat values are not at all high. However, human milk values (0.144 ppm total DDT) are higher than the WHO recommendation for the maximum permissible level of DDT in human milk which is 0.05 ppm. This indicates that the breast fed infant is being exposed to DDT since birth and during early infancy and in higher quantities. This issue will soon be settled by analysing blood, urine and small body fat samples which is being pursued.

Retrospective five year study of poisoning cases at AIIMS Hospital carried out to prepare a data base as a source of poisoning surveillance information (Pediat, Pharmacol)

Treatment of progressive systemic sclerosis with 5-flurouracil (Med., Pharmacol)

Research Continuing:

Wound healing plants

Chemical studies with the plant material of SANDHANA KARANI indicated that steroids were present in the petroleum ether and ethanol extracts whereas glycosides and terpenes were present in the methanol fraction. It was also shown that methanol fraction on treatment with activated charcoal lost the wound healing property indicating that the active ingredient was adsorbed by this agent.

However, the terpene glycosides of SANDHAN KARANI prevented the onset of infection of the treated wounds, inhibited the inflammatory response, promoted early fibroblast formation and increased tensile strength of the wounds. It is most likely, therefore, that the terpene glycosides may be responsible for the rapid wound healing properties. However, this proposition requires more experimental support. Further, work with respect to its biochemical mechanism of healing is in progress.

Wound healing properties of other folklore plants, namely - Aloe vera (KUMARI) and Centella asiatica (BRAHMI) are being investigated.

Antifertility activity of the leaf extract of Neem plant, Azadirachta indica

Aqueous extract of fresh neem leaves appears to inhibit sperm motility in - vitro. When given orally to male mice for a period of about one month, it decreased the fertility rate and weight of accessory sex glands.

Effect of drugs on cisplatin induced gastric dilatation

Gastrokinetic agents metoclopramide, dazopride, BRL-43694 a novel 5-HT₃ receptor antagonist, mianserin 5-HT₂ receptor antagonist and diethyldithiocarbamate an antioxidant and metal chelator were studied against gastric effects of cisplatin. None of these decreased, induced increase in gastric volume when compared with

distilled water treated controls. However, treatment with reserpine and neostigmine caused significant decrease in gastric volume. The effect of other group of drugs are being investigated. This property will be useful in understanding the mechanism of cisplatin induced nausea and vomiting and identification and development of effective antiemetic therapy.

Role of antioxidants in cisplatin induced vomiting

Free radicals have been implicated in the mediation of cisplatin induced toxicity. Antioxidants have been seen to protect against cisplatin induced nephrotoxicity.

Diethyldithiocarbamate an antioxidant has been found to decrease vomiting induced by cisplatin in dogs. Presently the efficacy of vitamin E is being investigated in the dog model. Vitamin E in doses of 50 and 100 units/kg decreased the number of bouts but not significantly. Work is in progress using higher doses of vitamin E.

Effect of verapamil on coronary reperfusion induced myocardial injury in canine model (CTC, Pharmacol)

Effect of propranolol on coronary reperfusion induced myocardial injury in canine model (CTC, Pharmacol)

Myocardial functional and molecular mechanisms in experimental chronic diabetes (CTC, Pharmacol)

Pharmacological interventions in neurogenic pulmonary edema : A hemodynamic and biochemical profile (NSC, Pharmacol)

Bioavailability of rifampicin, pyrazinamide and isoniazid in patients of tubercular meningitis (NSC, Pharmacol)

Diagnosis of primary aldosteronism in hypertensive patients by measuring serum potassium, plasma renin activity and plasma aldosterone levels (CTC, Endocrin, Pharmacol)

Plasma angiotensin II levels in normal subjects and patients with renovascular and chronic renal parenchymal hypertension (CTC, Endocrin, Nephrol, Pharmacol, Rad. Diag.)

Estimation of 5-HIAA in CSF of hydrocephalus patients before and after shunt (NSC, Pharmacol)

Serum cortisol response to oral 5-Hydroxytryptophan (5-HTP) in depressive patients (Pharmacol, Psychiat)

New Research

1. Mechanism of action of Pinaverium bromide as antispasmodic drug and its evaluation in irritable bowel syndrome.
2. Prospective one year study of poisoning cases at AIIMS on the basis of the prepared data base.
3. Plasma renin activity in postrenal transplant hypertension.
4. Localization of areas and characterization of receptors in brain stem and hypothalamus controlling vomiting.
5. Computer assisted learning/teaching and research of traditional medicine.

AWARDS AND EVENTS

Significant Events

Dr. S.D. Seth has been nominated as the chairman of the National Committee of International Union of Pharmacology of Indian National Science Academy; member of the Governing Body of the Homeopathy Council of Govt. of India ; member of the Enquiry Committee for recognition of Electro Homeopathy; member of the editorial board of (i) Indian Journal of Experimental Biology (ii) Indian Journal of Pharmacology and Continues to be the member of editorial board of (iii) European Journal of Pharmacology (iv) Journal of

Anaesthesiology and Clinical Pharmacology (v) member of the International Advisory Board of Canadian Journal of Cardiology. He is the (i) member Secretary of the Ethics Committee of AIIMS and (ii) member of the Ethics Committee of the Malaria Research Centre of ICMR; continues to be a member of (i) Scientific advisory group of the Advanced centre on "Traditional Remedies of CDRI Lucknow and (ii) the Snake Bite Centre" at Amla Cancer Research Institute Trichur, (iii) the panel of IMA as a specialist for their drug information centre; has been nominated as member of the faculty of Pharmaceutical Sciences, Punjab University, Chandigarh; continues to be member of the Drug Selection Committee and Advisor, Gymkhana Club AIIMS.

Dr. H.H. Siddiqui was nominated as Chairman, Committee on category-I, Ministry of Health and Family Welfare to review drugs included under DPCO, 1987; continues to be a member of the Drug Technical Advisory Board (DTAB), Sub-committee of Drug Consultative Committee to weed out irrational combination and hazardous drugs, Ministry of Health and Family Welfare, expert to advise the Drug controller, Department of Delhi Administration on drug combinations; officer-in-charge of the Crystalloid Unit and Hospital Pharmacy, member of the Drug Selection Committee and member secretary of the Formulary Committee of AIIMS; continues to be the member of the Delhi Pharmacy Council of Delhi Administration.

Dr. J.N. Sharma continued as the member of the Committee of courses for Postgraduate and Research studies, University of Delhi; Director (Public Relations-North India) of the Indo-European Medical Association Denmark and Vice President of Lok Vigyan Parishad, New Delhi.

Dr. S.B. Lall guided the research work, entitled, "The Cardiovascular effects of increasing blood levels of trichloroethylene under normocapnic conditions in dog". This work has been selected for T.N. JHA Memorial Award, 1989. She continues to be the member of Subcommittee to screen research proposals for Institute Research Grant.

Dr. Y.K. Gupta continues to be the member of the Editorial Board of Himalayan Chemicals and Pharmaceutical Bulletin; acted as panelist in "International symposium on Nausea and vomiting : A multidisciplinary perspective", November 1988, Ottawa, Canada in which he presented a paper entitled, "Effect of BRL 43694, a noval 5-HT₃ - receptor antagonist on cisplatin induced emesis in³ dogs and gastric stasis in rats".; Dr. Gupta visited neuropharmacology laboratories in London and Edinburgh for 3 months under INSA - Royal Society Exchange Programme; nominated as the member of undergraduate curriculum committee Phase II and III of AIIMS, New Delhi.; delivered guest lecture on "C.T. Zone and its receptors" at Department of Pharmacology, University of Einburgh, U.K. in May 1988; "Neuropharmacology of vomiting" at St. Andrews Medical School., London and on "Neurotransmitter receptors in C.T. Zone and their significance" at Department of Chemical Pathology, University of London, U.K. in June 1988;

HOSPITAL SERVICES

Special investigations

Urinary catecholamines	385
Pregnancy tests	1906
Urinary VMA	17
Urine Copper	80
Serum Copper	31
Blood lead	8
Arsenic in hair and urine	7
Secret medicine analysis	24
5-Hydro Indole Acetic acid	55
Radioimmunoassay of plasma renin activity	118
Plasma Aldosterone	11

75 litres of Joulies solution was prepared and regularly supplied to 12 patients. This service is continued for the treatment of refractory rickets with hypophosphataemia.

Community Services and Education

Dr. J.N. Sharma wrote 20 articles in Hindi news papers and magazines to enlighten the common man regarding the early recognition of signs and symptoms requiring medical attention and gave six talks on AIR.

PUBLICATIONS

1. Bhandari, P., Gupta, Y.K. and Seth, S.D. : Emetic profile of cisplatin in dogs Asia Pacific Journal of Pharmacology 1988, 3, 131-133.
2. Bhandari, P., Gupta, Y.K. and Seth, S.D.: Effect of diethyldithiocarbamate on cisplatin induced emesis in dogs. Asia Pacific J. Pharmacol 1988, 4:247-250.
3. Bhide, N.K.: Lentin Commission Report National Med. J. of India, 1988, 1, 204.
4. Chugh, A., Gupta, Y.K., Bhandari, P. and Seth, S.D.: Characterization of dopamine receptor subtypes in chemoreceptor trigger zone in dogs. Asia Pacific J. Pharmacol. 1988;3: 135-139.
5. Gupta S.K., Bhardwaj, S.L., Mathur, M. and Bhide, N.K.: Pyrogens in parenteral fluids the Eastern Pharmacist, 1988, 31, 31-35.
6. Gupta, Y.K., Bhandari, P., Bhargava, K.P., Dixit, K.S. and Seth, S.D.: Role of endogenous opioids and histamine in morphine induced emesis in dogs. Indian Jour. of Exp. Biol. 1988, 27, 52-54.
7. Gupta, Y.K., Chugh, A. and Seth, S.D. : Effect of apomorphine on morphine induced antinociception : a dose related phenomenon. Pain 1989, 36, 263-69.
8. Gupta, Y.K., Kishore, K. and Basu, N.: Comparison of bioavailability and analgesic efficacy of four brands of aspirin tablets. The Eastern Pharmacist, XXXI, 1988, 372, 125-127.

9. Piva, R., Bianchini, E., Kumar, V.L., Chambon, P. and del Senno, L.: Estrogen induced increase of estrogen receptor RNA in human breast cancer cells. *Biochem. Biophys. Res. Commun.* 1988, 155, 943-949.
10. Piva, R., Kumar, V.L., Hanau, S., Rimondi, A.P., Pansini, S., Mollica, G. and del Senno, L.: Abnormal methylation of estrogen receptor gene and reduced estrogen receptor RNA levels in human endometrial carcinomas. *J. Steroid. Biochem.* 1989, 32, 1-4.
11. Rao, T.S., Mathur, M. and Bhide, N.K.: Late Inflammatory swelling by carrageenin on rat's subcutaneous neck tissue. *Indian J. Physiol Pharmacol* 1988, 32, 212-214.
12. Sharma, J.N. and Pandya, S.K. : Classics in Indian Medicine - CHARAK National Med. J. India 1988, 1:309.

Books

Calcium Channel Blockers and Heart. Ed. Seth, S.D., Manchanda, S.C. and Siddiqui, H.H. Interprint, New Delhi 1989.

Collaborative publications	5
Papers presented at scientific meetings	12
Papers accepted for publication	1

Chapter 6.14

REPRODUCTIVE BIOLOGY

FACULTY

Professor and Head	A. Farooq
Associate Professors	M. Rajalakshmi K. Murugesan
Assistant Professor	N.N. Sarkar

Dr. N.N. Sarkar joined as Assistant Professor in May, 1988.

EDUCATION

Continuing Medical Education

Dr. M. Rajalakshmi organised a workshop on "Primate management and experimentation" in November, 1988 with support from various national agencies. Dr. M. Rajalakshmi and Prof. A. Farooq participated as faculty in the above workshop.

Prof. A. Farooq spoke on "Physiological correlates and hormonal profile in perimenopause" in a symposium on Menopause at the annual meeting of the Geriatric Society of India at Calcutta, January, 1989.

The department imparted short-term training in radioimmunoassay of steroid hormones to two scientists from Delhi University.

RESEARCH

Research Completed

The efficacy of a single intramuscular injection of long acting androgen ester 20 Aet-1 or other compounds

on the maintenance of androgen status in castrated rhesus monkeys

Studies were carried out to assess the comparative efficacy of the two androgen esters, 3 Ad and 20 Aet-2, given as single or multiple injections to castrated rhesus monkeys. It was seen that multiple injections of 80 mg of the drug elevated androgen levels three times higher as compared to same dose of the drug given as a single injection. However, the time taken to reach castrate levels of testosterone was not different in the two types of injection schedules.

Development of a microtechnique for estradiol and progesterone receptors in breast tumours.

The estimation of estradiol and progesterone receptors in breast tumours requires a minimum of 100 mg of tissue for a reliable receptor assay. As a complement of biochemical receptor assay, immunoreceptor assay using monoclonal antibodies against estradiol and progesterone receptors were utilized to validate the assay when less tissue was available.

Research Continuing

Studies on the action of steroids in the regulation of testicular function in adult rhesus monkeys

Studies were done using different doses of 5 alpha- androstane-3 alpha -17B diol administered to adult male rhesus monkeys for the duration of one spermatogenic cycle. With increase in duration of drug and dose of steroid, a decrease was seen in the number of animals that could ejaculate. Simultaneously, motility of spermatozoa decreased and androgen levels were suppressed. Serum FSH and estradiol levels were normal.

Studies on the physiology of the epididymis and spermatozoa in rhesus monkeys

Studies were carried out to standardise culture of epididymal tubules of rat to assess their function in vitro. Epididymal tubule was dissected free of fat and connective tissue and straightened out using different concentrations of collagenase. The results obtained were compared with those obtained following mechanical straightening of tubules. The data showed that even the lowest dose of collagenase used had adverse effects on the tubule in culture. These included desquamation of epithelium in the initial period of culture followed by disintegration of epididymal cells. These data indicate that for culture of epididymal tubules, mechanical straightening of the tubule is necessary.

Studies on the biotransformation of steroids in the uterus: Role of antiestrogen in estradiol metabolism.

The in vivo effect of antiestrogen - tamoxifen on estradiol and estrone metabolism in rabbit uterus was carried out. Tamoxifen treated rabbit uteri showed decreased estradiol to estrone conversion in comparison with estradiol treated group. A comparison with the estradiol to estrone conversion in progesterone, norethindrone, norethindrone acetate and norgestrel treated uterus showed that tamoxifen induced higher levels of 17B - hydroxy steroid dehydrogenase enzyme than progesterone and norethindrone acetate.

Studies on the interaction of antiprogestins with steroid hormone receptors in uterus.

The interaction of antiprogestins with estrogen and progesterone receptors was investigated in rat uterus. The cytosolic and nuclear receptor under the influence of antiprogestins viz. 5 alpha-DNE, 5 alpha-DNG, RU 22092, RU 16556 and STS 557 were measured in rat deciduoma and compared with contralateral (non deciduomatous) rat uterine tissue. In the decidual tissue the concentration of progesterone receptor in the cytosol decreased significantly due to the antiprogestin treatments. Maximum effect was observed due to 5 alpha DNG treatment. The nuclear progesterone receptors of the decidual tissue also decreased

maximally due to 5 alpha-DNG treatment.

Antiprogestins lowered the cytosolic estradiol receptor concentration in the decidual tissue. The nuclear estradiol receptor concentration, however, increased under the influence of antiprogestins while it was decreased in the control horn. The results suggested that the interaction of antiprogestins with the control uterine tissue may not be identical with that of deciduoma. Further studies will be carried out to develop the deciduoma model using different methods. The study of the antiprogesterin will be continued for studying the interaction of RU 38486 and other antiprogestins with the deciduoma.

Studies on steroid hormone receptors in breast cancer

The nuclear translocation of receptors is an important molecular event in the final biological effect of a hormone. However, not much is known about nuclear translocation in breast cancer tissues. In the present study the translocatable receptors categorised as functional receptors were quantitated in a cross incubation study of breast cancer nuclei with receptor rich uterine cytosol. Data demonstrated that a tumor which contained cytosolic estrogen receptor but had translocation defect might not be hormone dependent while a tumor with low estrogen receptors but having intact nuclear translocation step will respond to antiestrogen therapy. 58% of postmenopausal and 54% of premenopausal breast cancer tissues were cytosol ER positive while 62% and 57% of tumours in the premenopausal and postmenopausal state respectively were positive for nuclear ER. The study suggested that evaluation of functional ER level would reduce the number of false negative and false positive cases.

Biochemical studies on the role of calmodulin in human breast tumours (Rep. Biol., Surg.)

Role of immunosuppressive factor(s) in pregnancy (Ob & Gyn., Rep. Biol.)

Studies on the biliary glycoprotein in human hepatic bile (GE, Rep. Bio.)

New Research

1. Interaction of DDT and its metabolites with estradiol receptors and their role in human uterine leiomyomas.
2. Analysis of epididymal secretion and its role in sperm maturation.
3. Role of antisperm antibodies in infertility.
4. Lymphocyte subpopulation of testis and seminal fluid and its role in male infertility.

AWARDS AND EVENTS

Significant Events

Prof. A Farooq was invited as an expert member of the Scientific Advisory Group for advanced research centres in Reproductive Biology of ICMR and has been nominated again as a member of the Editorial Advisory Board of the CSIR popular science journal, "Science-Ki-Duniya" for a period of three years.

Dr. M.Rajalakshmi attended the steering committee meeting of the WHO task force on Regulation of Male Fertility in Jakarta, Indonesia; invited to attend the II international symposium on Recent advances in researches on male fertility regulation and infertility management at Semarang, Indonesia in which she spoke on "Use of nonaromatisable androgens for male fertility regulation", in October, 1988; attended the international symposium on Recent advances in male reproduction at Hyderabad and presented a paper on "Effect of nonaromatisable anrogens on sperm function in rhesus monkeys" in July, 1988; attended the WHO advanced sperm function workshop at Hong Kong, December, 1988.

Dr. Pushpa Jha presented a paper on "Serum prolactin level as a possible tumour marker in ovarian malignancy" in the 8th International Congress of Endocrinology at Kyoto, Japan in July, 1988.

Dr. Renu Saxena attended the Indo-French colloquium on "Recent advances in life sciences and vaccinology", held in National Institute of Immunology, New Delhi, February, 1989.

Visiting Scientists

Prof. P.N.Srivastava, Athens, Ga., USA visited the department in April, 1988 and discussed "The molecular events in gamete interaction" in a seminar.

HOSPITAL SERVICES

A. Radioimmunoassay of reproductive hormones

A total of 2301 hormone investigations were performed pertaining to 1098 patients. The following is hormone wise breakup of the investigations performed:-

Estradiol	192
Progesterone	216
Testosterone	301
Free testosterone	100
DHEA-sulphate	87
FSH	425
LH	424
Prolactin	556
Total	<hr/> 2301 <hr/>

B. Estimation of tumour markers

CEA	26
hCG	38
Estradiol receptors	83
Progesterone receptors	70

C. Semen analysis

A total of 928 semen samples received from infertility clinics of various departments were analysed for morphology, motility, biochemical and immunological parameters.

PUBLICATIONS

1. Saxena, S., Jha, P. and Farooq, A. Purification and characterization of immunosuppressive factor from normal human seminal plasma. J. Reprod. Immunol. 1988;13: 133-146.
2. Vij, U., Murugesan, K., Kalita, J. C. and Farooq, A Interaction of antiprogestins with progesterone receptors in rat uterus. J. Steroid Biochem. 1988; 32:279-282.

Collaborative publications	3
Papers presented at scientific meetings	9
Papers accepted for publication	4

Chapter 6.15

ANAESTHESIOLOGY

FACULTY

Professor and Head	H.L. Kaul
Additional Professor	Chandralekha
Associate Professor	T.S. Jayalakshmi R. Madan M.K. Arora D.K. Pawar
Assistant Professor	R.K. Batra A.P. Bhalla G.P. Dureja A. Saxena R. Saksena Maya P. Mandal S. Rajeshwari

Prof. H.L. Kaul took over as Head of Department on 1st April, 1988 when Prof. G.R. Gode retired.

Dr. Maya, Dr. Mandal, Dr. Rajeshwari and Dr. Ravi Saksena joined as Assistant Professors. Dr. Usha Saha joined as Assistant Professor (Ad hoc) in Oct. 1988. Dr. M.K. Arora returned from IGICH, Kabul in Sept. 1988.

Dr. A. Saxena has joined King's College, London as visiting lecturer in Anaesthesiology w.e.f. 30.3.1989 for a period of eight months.

EDUCATION

Postgraduate - The postgraduate teaching programme was intensified with guest lectures by

faculty from Biochemistry, Cardiology and Endocrinology departments.

Continuing Medical Education

Dr. G.P. Dureja chaired a symposium on Muscle Relaxants and Dr. A.P. Bhalla gave a guest lecture entitled 'A review of ventilatory modes in the 3rd national conference of Research Society of Anaesthesiology - Clinical Pharmacology at Pune in Oct. 1988.

Dr. Chandralekha attended the computer course held at AIIMS in August 1988.

Dr. T.S. Jayalakshmi and Dr. D.K. Pawar attended 2 days administrative course conducted by AIIMS.

Dr. H.L. Kaul, Dr. R. Madan and Dr. R.K. Batra delivered lectures on 'Ophthalmic anaesthesia and CPBR' for members of Delhi Society of Ophthalmologists in Jan. 1989.

Dr. H.L. Kaul, Chaired a session on Paediatric Emergency Care in August, 1988 during an International Seminar organised by the Department of Paediatrics, AIIMS; was invited to participate in a panel discussion on intensive care in January, 1989 during annual conference of the National College of Chest Physicians; lecture on 'Role of high frequency ventilation and ECMO in congenital diaphragmatic hernia: factors affecting survival" in an International workshop on 'Recent advances in Neonatal Surgery and Intersex disorders' March, 1989; chaired a session in CME on "Regional analgesia' in annual conference of Association of surgeons of India December, 1988; invited as a member of a committee set up to evaluate. "Undergraduate teaching curriculum in Anaesthesiology ' at MAMC, New Delhi, sponsored by Medical Council of India March, 1989.

Prof. H.L. Kaul, Dr. D.K. Pawar and Dr. A. Saxena discussed the Anaesthetic management of separation of Siamese twins in Delhi branch of Indian Society of Anaesthetists meeting held at AIIMS, in Jan. 1989.

Dr. T.S. Jayalakshmi attended the CME on Clinical management of AIDS conducted by Govt. of India and WHO at AIIMS, in March 1989; Dr. Jayalakshmi and other faculty members of the department conducted the course for Inservice education programme for senior sisters and staff nurses for training in ICU and resuscitation in the form of lectures and demonstration, in coordination with the College of Nursing for four batches.

Dr. N.U. Satyanaryana and Dr. K. Koteswara Rao from Guntur Medical College A.P.were provided for training in ICU for two months.

Dr. Jaspal Kaur from Singapore took training in Paediatric Anaesthesia.

'ORBIS' the flying operation theatre came to Delhi in Sept. 1988 to demonstrate the operation and teaching technique. The faculty and residents of the department of Anaesthesiology actively participated in this programme and organised teaching sessions at AIIMS on 14.9.89 regarding the 'ORBIS' experience and liver transplantation.

RESEARCH

Research Completed

Pressor response during laryngoscopy and intubation and its attenuation by metaprolol, lignocaine and nitroglycerine

A Comparative study

This study was conducted in 60 patients divided in four equal groups. These patients received either lignocaine intravenously 1.5mg/kg. 90 secs before induction, topical/nitroglycerine 12 min before induction or metaprolol orally 50mg 2 hours prior to induction. It was found that oral metaprolol provided the best protection against the pressor response observed during laryngoscopy and intubation.

Comparison of epidural buprenorphine with IV buprenorphine and pethidine for post operative pain relief in children.

A total of 60 children have been studied. Twenty received buprenorphine 1.5 mcg/kg and remaining 20 received pethidine 1mg/kg iv for post-operative analgesia. Quality of analgesia was assessed using clinical parameters, PEFR, and modified visual analogue score. Results were analysed and it was found that the quality and duration of analgesia was much better with epidural buprenorphine as compared to IV buprenorphine and pethidine.

Estimation of serum potassium and serum creatine phosphokinase levels after succinylcholine administration in patients with CRF.

It has been seen that there is increase in serum K and C.P.K. levels after succinylcholine and this rise is more in C.R.F. patients. Increase in serum K. and C.P.K. value is less if patients are precurarized. This study was carried out in 30 patients divided into 3 groups. Group I consisted of control patients of ASA I, Group II: CRF patients where pre-curarization was done and Group III: CRF patients with no pre-curarization.

The cardiovascular effects of increasing blood levels of trichloroethylene (TCE) in dogs.

The concentration of TCE was estimated in ten dogs with increasing concentrations of TCE under normocapnic conditions. The study showed that the mean blood concentration of 9.16 mg% of TCE was required to attain surgical plane of Anaesthesia. At a mean blood conc. of 203.8%, cardiac arrest occurred in 60% of dogs. A therapeutic ratio of 22.26 was calculated which was more than 10 times that of ether. 20% incidence of transient bigeminy was found even in presence of normocapnia. It is concluded that TCE is a safe anaesthetic under normocapnic conditions and higher therapeutic ratio.

Induced hypotension using Sodium nitroprusside (SNP) in patients of portal hypertension undergoing L.R. Shunt (ICMR)

The operative blood loss in L.R. shunt averages about 2 litres and the increased operative time accounts for the high morbidity and mortality. SNP was used for hypotensive anaesthesia and the blood loss in these patients were found to be considerably less than the controls and the blood transfusion requirement was also lower. No reactionary haemorrhage in patients receiving SNP was seen. It was concluded that SNP hypotensive anaesthesia may be used more widely in operations for portal hypertension where liver function is preserved.

Effect of pretreatment with nifedipine on Intraocular pressure (IOP) after suxame thonium and endotracheal intubation on normal and glaucomatous eyes.

Sublingual nifedipine was given 20 mins before induction and intubation performed with thiopentone and suxamethonium. IOP was measured before and after premedication after pretreatment and after intubation. There was no significant change in IOP in control as well as in nifedipine group in normal and glaucomatous eyes.

Use of ketamine for diagnostic laparoscopy.

100 OPD patients were given ketamine anaesthesia for diagnostic laparoscopy. An induction dose 0.7 mg/kg and maintenance dose of 0.058 mg/kg per min IV infusion was found useful for this procedure.

Incidence of bronchial foreign bodies: comparison of left with right side impaction.

Survey of children revealed that the frequency of left sided impaction was lesser than right sided although the bronchi are supposed to arise at the same angle in children, unlike an adult. Radiological studies were conducted to find out the angulation of

bronchi at their origin and reasons for higher frequency of right sided impaction defined.

Research Continuing

Behavioural changes in children coming for day care surgery:

Parents of children coming for minor day care surgical procedures under general anaesthesia are being given a questionnaire in their followup visits. Any changes in the child's behaviour, either of a minor or a major degree is being monitored. It is an open, prospective study to correlate changes in behaviour due to premedication and anaesthetic techniques.

Evaluation of pain score in children

A scoring system has been designed based on our clinical experience to objectively assess pain in children. Children above 4 years are being studied for the evaluation of scoring system and is being compared with visual analogue scale.

Caudal morphine for post-operative pain relief in children

The children are divided into three groups A, B & C groups according to their site of wound i.e. lower abdominal, genital-perineal-inguinal and upper abdominal/chest. Their pain is evaluated upto to 48 hrs postoperatively using pain score as well as visual analogue scale. This technique provides satisfactory postoperative analgesia.

Oxygen saturation during induction and recovery of anaesthesia.

All the children undergoing anaesthesia are monitored for SaO_2 duration, course and time taken to revert back to normal value is noted.

Evaluation of Metoclopramide, digene and the combination of both in prevention of vomiting in oral surgery.

The patients are divided into 4 groups by random selection number and given Digene 0.5 ml/kg orally 2 hrs prior to procedure. Metoclopramide 100mcg/kg IV 10 min before the end of procedure or both Digene and metoclopramide. In the control group, no prophylaxis has been used. The post operative evaluation for nausea and vomiting is carried out by a person who is not aware of the prophylactic measures used.

Comparison of IV dilantin with dTc for amelioration of suxamethonium induced myalgias and muscle damage.

IV dilantin has been found to decrease suxamethonium induced fasciculation in the isolated cat soleus muscle. It was therefore decided to evaluate its efficacy in reducing suxamethonium induced damage and myalgias in man. Sodium dilantin in dose of 5 mg/kg is being used as pretreatment 5 min before suxamethonium in 20 healthy adult patients undergoing superficial surgery. A 2nd group of 20 patients have been pretreated with 3 mg d-tubocurarine and a 3rd group of 20 patients acting as control received no treatment prior to suxamethonium. Parameters being studied are severity of fasciculations, post-operative myalgias, duration of postoperative myalgias and serum CPK levels. Preliminary data is inconclusive for role of dilantin in suxamethonium induced fasciculations.

Stress response to abdominal surgery in children - a comparison of two techniques

Epidural anaesthesia using 2% lignocaine is being compared with balance anaesthesia in paediatric age group undergoing abdominal surgery to compare the stress response between the two groups. The parameters being studied are pulse-rate, blood-pressure, ECG, plasma cortisol, blood glucose, FFA, Lactate and pyruvate. Not enough data is available to comment upon changes if any.

Evaluation of cost of anaesthesia

A random study is being carried to assess the cost of anaesthesia to the patient for major and minor procedures, as OPD patient and as admitted patients. Cost of anaesthesia includes, equipment's cost, cost of drugs, expenditure on personnel, and post-operative ward. Cost per hour is calculated.

Comparison of epidural analgesia with buprenorphine and ketamine in the post-operative periods, following major abdominal and thoracic surgery.

Three different doses of buprenorphine (1,2, and 3 mcg/kg) and of ketamine (1,1,5 and 5mg/kg) in 10 ml of normal saline injected postoperatively when patient complained of pain. Onset of action, duration of action, PFT, any incidence of side-effects were also measured. Buprenorphine 2mcg/kg provided satisfactory analgesia without drowsiness as compared with 3mcg/kg. Ketamine, 1mg/kg, produced hallucinations and unpleasant dreams, though pain relief was very good with duration of 8 to 12 hrs.

Study of craniosynostosis in North India: clinical, genetic radiological, psychological and surgical aspects in children:

Patients suffering from craniosynostosis for craniectomy and fronto-orbital advancement are under study. BP, Pulse rate, temperature, urine output, and ICP are being monitored intra-operatively. ICP study will be done before start of procedure, before induction and before incision, before and after giving diuretics, end of surgery and in the post-operative period upto 7days.

Evaluation of long term improvement in Pulmonary functions following corrective surgery of scoliosis.

Fifty patients who underwent corrective surgery of scoliosis have been evaluated and followed up for a varying period of upto 3 years. Improvement was found in the pulmonary functions upto 3 months. The study is in progress.

Evaluation of postoperative pulmonary complications in relation to preoperative pulmonary status (ICMR)

A total of 900 patients with normal and diseased lung have been studied so far. The incidence of significant post-operative complications is 34% in those with moderate to severe lung disease compared to 3.5% in normal lungs when general anaesthesia is given. The incidence has been reduced to 11.8% following regional anaesthesia in same type of surgery. A higher incidence has also been observed in patients above 60 years of age. Recently the role of physiotherapy and postoperative analgesia have been evaluated in patients with severe preoperative lung disease. The incidence of complications has remarkably been reduced, emphasizing its role.

New Research

1. Oxygen saturation as a monitoring during bronchoscopy in children.
2. Oxygen saturation during different modes of induction in neonates.
3. Perioperative management of insulin dependent diabetes undergoing major surgery: an evaluation of continuous glucose-potassium-insulin infusion technique with the conventional technique.
4. Evaluation of caudal epidural methyl prednisolone in the management of low backache.
5. Evaluation of laryngoscopic and intubation response in hypertensive patients receiving different antihypertensive agents.
6. Effect of repeated anaesthesia on liver function tests of children undergoing radiotherapy under anaesthesia using three different techniques.

7. Effects of different premedication on anaesthesia and recovery in infants undergoing ophthalmic surgery.
8. Intrarticular buprenorphine after arthroscopy for post-operative pain relief.
9. Evaluation of laryngo-tracheal complications of prolonged endotracheal intubation and tracheostomy in patients getting intensive care (ICMR)
10. Haemodynamic response on skin incision in patients undergoing craniotomy under GA, after infiltration of local anaesthetic bupivacaine.

AWARDS AND EVENTS

Distinctions, Awards, Honours

A registered society of the Departmental staff by the name of " Research Society of Anaesthesiology and Allied science" was formed.

"Journal of Anaesthesiology and Clinical Pharmacology" continues to be edited and published from this Department since Jan. 1985. Dr. H.L. Kaul continues to be editor of Anaesthesiology and Clinical Pharmacology with Dr. T.S. Jayalakshmi, Dr. H.H. Dash, DR. M.K. Arora, Dr. G.P. Dureja and Dr. Abha Saxena as Associate Editors.

Significant Events

Professor H.L. Kaul was awarded INSA-Royal Society visiting fellowship to England from 20th Sept to 27 Oct. 1988. During this period Prof. Kaul visited Anaesthetics department of the University of Sheffield Medical School and gave a talk on Paediatric anaesthesia. He also visited Queen University of Belfast Department of Anaesthesia and delivered a lecture on Post-operative Pulmonary Complications. He visited various training and research facilities in Belfast and Intensive therapy unit of the Western

Infirmery, Glasgow. This visit included discussion on the modalities of transport of critically ill patients over long distances. He also gave a talk on " Intensive care unit in India, the problem and prospects"; visited Indira Gandhi Institute of Child Health, Kabul in June and Sept. 1988 for 2 weeks each as visiting professor. The visit included lectures and demonstrations.

After a gap of 18 years, a second conjoined twin separation was successfully managed. All the members of the departmental faculty participated in pre, intra, and post-operative management in the successful venture.

Visiting Scientist

Prof.S.Yajnik, Prof. and Head, Department of Anaesthesiology, K.G. Medical College, Lucknow was invited as a Visiting Professor from 26th to 30th March 1989. During his stay he discussed various topics dealing with Physics in Anaesthesia and delivered a lecture on " Management of cancer pain-new strategies"

HOSPITAL SERVICES

Pain Clinic has been restarted in the department from Feb. 1988. Anaesthesia clinic has been started from surgical cases for pre-operative evaluation in the 5th floor O.P.D. on Monday, Wednesday and Fridays afternoon from Feb. 1989. Extra 68 operation lists were provided for different surgical teams to compensate for the holidays and back-log.

During summer vacation the operation theatre working hours were extended to compensate for the reduction of operation theatre.

The anaesthesia services during the year extended to different surgical specialities and field are as follows:

<u>Speciality</u>	<u>No. of Pts.</u>
General surgery	2207
G.I. Surgery	319
Renal Transplantation	18
Urology operations & Procedures	836
Dental Surgery	175
E.N.T.	1214
Gynaecology	2083
Obstetrics	1144
Orthopaedic	1790
Casualty services	617
Radiotherapy/Radiodiagnosis	304,+36
I.R.C.H.	79
Modified E.C.T.	90
Peripheral Calls	971
Pain Clinic	606
I.C.U.	1128
Total cases attended	11883
Total emergency cases attended	2465

Community Services and Education

Dr. Chandralekha gave a talk on AIR about 'Anaesthesia ke barein Me' in Hindi on 24.2.89.

Dr. T.S. Jayalakshmi is involved in Health programme talks for women and child in Kalkaji camps once a week.

PUBLICATIONS

1. Chawla R., Dureja G.P., Saksena R. and Kaul H.L. Recurrent Pulmonary Oedema following sodium nitrate poisoning. J. Anaesth Clin Pharmacol 1989:4:15-18.
2. Dureja, G.P., Bhattacharya, A and Sham Lal. Comparative evaluation of Electroacupuncture analgesia and local analgesia in outpatient dental extractions. Stomatologica India 1988:2:90-91.
3. Dureja, G.P. Calcium antagonists - emerging clinical opportunities (Editorial) J Anaesth Clin Pharmacol 1988:4:143-145.
4. Dureja G.P., Bansal, S.K. and Ghosh P. Large Epiglottic granuloma following repeated endotracheal intubation. J. Anaesth.Clin Pharmacol 1988; 4:259-261.
5. Gode G.R., Saksena R., Batra R.K., Kalia P.K. and Bhide N.K. Treatment of 54 clinically diagnosed rabies patients with two survivals, Ind J Med Res 1988:88: 564-566.
6. Jayalakshmi T.S., Kale S.C., Sampath Kumar A., Durga Prasad Accidental displacement of endotracheal tube during open heart surgery (A case report) Ind J. Anaesth 1987;35:382-384.
7. Jayalakshmi T.S., Bithal P.K., Gode G.R., Kale S. Evaluation of some definite signs for correct placement of endotracheal tubes in difficult situations. J. Anaesth Clin Pharmacol 1988; 4:183-187.

8. Kale S.C., Mahajan R.P., Jayalakshmi T.S., Raghavan V., Das B., Nifedipine prevents pressor response to laryngoscopy and tracheal intubation in patients with coronary artery disease. *Anaesthesia* 1988;43:493-497.
9. Kaul H.L., Enflurane and Isoflurane, Do they have a place in our practice (Editorial) *J. Anaesth Clin Pharmacol* 1988;4:209-212.
10. Kaul H.L., Monitoring in Anaesthesia and Surgery (Editorial) *Natl. Med J. Ind* 1988; 1:116.
11. Mandal P., Bhalla A.P., Gode G.R. Anaesthetic management of a patient for relief of cardiac tamponade a case report. *Ind J. Anaesth* 1988; 36:101-105.
12. Mandal P., Saini S.S., Effect of different concentrations of trichloroethylene on intracranial pressure during hypocarbia in neurosurgical anaesthesia: Human study. *Ind. J. Med. Res.* 1988; 87 :620-623.
13. Rajeshwari S., Kaul H.L. Saxena N. Total Intravenous anaesthesia: Evaluation of thiopentone and Propofol for major surgery. *J. Anaesth Clin Pharmacol* 1988;4: 111-117.
14. Saxena R., Arora, M.K., Kalia P.K., Wali A., Gode G.R., Bigeminy after extradural block. *J. Anaesth. Clin Pharmacol* 1988;4:263-264.
15. Srinivas M., Kaul H.L., Saxena N., Bhahadur, S. Deliberate hypotension in Radical head and neck surgery *J. Anaesth Clin Pharmacol* 1988;4:193-200.

Chapter in Books

Kaul H.L. Saxena, A., Jayalakshmi, T.S., Saxena S., Upgrading of Casualty Emergency Services for Drug Deaddiction. Ministry of Health and Family Welfare training manual on drug abuse. Published by Ministry of Health and Family Welfare 1988.

Collobrative publications	9
Papers presented at scientific meeting	6
Papers accepted for publications	8

Chapter 6.16

CARDIOTHORACIC CENTRE

FACULTY

Chief	R Tandon
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Anaesthesiology

Professor	N. Saxena
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Associate Professor	U. Kiron
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Assistant Professors	S. Kale P. Kalia A.K. Dhir D. Saxena
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Biochemistry

Additional Professor	L.M. Srivastava
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Cardiology

Professor and Head	R. Tandon
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Professors	H.S. Wasir S.C. Manchanda
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Professor Emeritus	M.L. Bhatia
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Additional Professors	S. Shrivastava K.K. Talwar U. Kaul
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Associate Professors	K.S. Reddy V.K. Bahl
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Assistant Professors	A. Saxena V. Dev J. Narula
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Cardiothoracic & Vascular Surgery

Professor and Head
Professors

P. Venugopal
I.M. Rao
M.L. Sharma

Professor Emeritus

N. Gopinath

Additional Professor

A. Sampath Kumar

Associate Professors

B. Airan
K.S. Iyer

Assistant Professor

B. Das

Nuclear Cardiology

Associate Professor

A. Malhotra

Pathology

Additional Professor

P. Chopra

Radiodiagnosis

Additional Professor

M. Rajani

Assistant Professor

S. Sharma

Dr N. Saxena, Dr IM Rao, Dr ML Sharma were promoted as Professor, Dr A Sampathkumar as Additional Professor & Dr U. Kiran as Associate professor during the year. Dr K.S.Reddy has rejoined after completing his training at McMaster University, Hamilton, Ontario, Canada. Dr A.Saxena is in U.K.for one years training under Commonwealth fellowship.

EDUCATION

Continuing Medical Education

Dr Bahl spoke on "Balloon valvoplasty for valvular aortic stenosis in children" in an update in Pediatric

Cardiology at Maulana Azad Medical College, Dec.1988; "Newer antiarrhythmic drugs" in an Update in Cardiology in October 1988 at AIIMS, "EKG diagnosis of acute myocardial infarction in a workshop on electrocardiography, IMA, New Delhi and "Role of PTCA and our experience" in an Update in Cardiology, at PGI Chandigarh in October 1988.

Dr. B. Das gave a talk on "Surgical management of diffuse coronary artery disease" at C.S.I. Delhi branch meeting in Sept. 88.

Dr V.Dev gave lectures on "Recent advances in therapeutics in IHD at a CME program at PGIMER Chandigarh in October 1988 and on cardiac arrhythmias in an arrhythmia update at AIIMS in October 1988.

Dr P Kalia participated in a panel discussion 'Clinical pharmacology - controversies' Post-operative pain relief after cardiac surgery" at 37 annual conference of I.S.A. at Udaipur December '88.

Dr Kaul gave lectures on "Percutaneous transluminal coronary angioplasty" IMA Saharanpur April 1988, "Risk-factors and control of ischemic heart disease in CME programme IMA, Moradabad, April 1988 ; Cardiac conduction system , genesis of normal ECG and normal variants , IMA East Delhi branch March 1989; "Syncope of unknown etiology and "Status of PTCA in Indian subcontinent' during circuit course on Cardiology, organised by Asian Pacific Society of Cardiology, N. Delhi & Srinagar July 1988, "fits and faints" in CME programme arranged by Dept of Neurology October 1988; 'Utility of Holter monitoring and choice of pacemaker for symptomatic bradyarrhythmias" in CME programme organised by Deptt. of Cardiology Nov. 1988. Recognition and management of cardiac arrhythmias in CME programme organised by Deptt. of Anesthesiology AIIMS New Delhi.

Dr Usha Kiran gave a talk on "Stress free life for better health" January 89, in Karimnagar Andhra Pradesh, participated in All India Health Awareness Campaign in April '88, gave lectures in Gwalior, Agra

and Osmania Medical Colleges on "Non-pharmacological methods of prevention and treatment of heart disease", participated in a discussion in Institute of Criminology on "Prevention of Crime" in October 1988. was a Co-ordinator in workshop on "Life style of better health" in February 1988 at Mount Abu. participated in a symposium on "Post-operative pain relief after cardiac surgery", at the 37 annual conference of I.S.A. at Udaipur December '88.

Dr A. Malhotra gave talks on 'Exercise radionuclide ventriculography at CME, PGI Chandigarh Oct 1988; Antimyosin antibodies in the detection of myocardial infarction. Northern Chapter Society of Nuclear Medicine India at New Delhi, October 1988 and Nuclear scanning in Cardiology. CME, CSI at Nagpur Feb., 1988.

Dr. Manchanda gave lectures on "Management of arrhythmias after acute myocardial infarction in 'Update in arrhythmias at a CME programme of Department of Cardiology, A.I.I.M.S., October, 1988. "Management of stable angina" in I.M.A. annual conference (U.P) Chapter, Agra, October, 1988. "Management of acute myocardial Infarction" during the annual conference of National Association of Critical Care Medicine, New Delhi, December 11, 1988. "Lipids and atherosclerosis" in special scientific meeting of C.S.I. (Delhi branch) December 1988. "Haemorheology and cardiovascular disorders" during the 'first national conference on Biomechanics' I.I.T. New Delhi, Dec 1988. 'Prognosis of silent ischaemia' during a C.M.E. programme of annual conference of API, Calcutta January 1988. "Balloon therapy for management of cardiovascular disorders" during I.M.A. conference (Saharanpur branch), January 1988.

Dr Reddy gave a talk on the 'Epidemiology of sudden cardiac death' organised by the Deptt. of Cardiology in October 1988 and on 'Teaching clinical epidemiology to undergraduates; acted as a resource person for developing the curriculum in the 'national workshop for development of an undergraduate curriculum in epidemiology' at New Delhi in February 1989.

Dr. N. Saxena gave a talk on "Pre-anaesthetic management of patients for coronary artery bypass surgery in a symposium on Anesthesia for coronary artery disease at 3rd annual conference of Anaesthesiology & Clinical Pharmacology held at Pune, October '88.

Dr. M.L.Sharma gave following talks in CME programmes "Current concepts on coronary artery surgery" in Agra, organised by U.P.Chapter of Association of Physicians in Oct, 1988; "Status of coronary artery surgery " in Meerut Medical College arranged by U.P.Chapter of API in Dec 88; "Nontraumatic cardiothoracic emergency" at the annual conference of Association of Surgeons of India held in Dec. 1988 in New Delhi.

Dr S. Sharma gave lectures on "Roentgen evaluation of cranio-facial malformations" in the CME on Radiology of orbital and para nasal sinuses, held at AIIMS; " Angiography and DSA in GU disorders" in the national seminar at Muljibhai Patel Society for research in Nephro- Urology at Nandiad , Gujrat and "Organization and establishment of special investigation services in cardiothoracic centre" in the hospital administration update held at AIIMS.

Dr Shrivastava gave invited lectures in Jaslok hospital Bombay on "Current status of percutaneous valvuloplasty" Dec, 1988, International pediatric update "Newer modalities in the diagnosis and management of cardiovascular diseases" held at AIIMS, Dec. 1988; update in Pediatric Cardiology "Basic principles of echocardiography", held at Maulana Azad Medical College New Delhi Dec. 1988; at Silver Jubilee celebrations of the PGI Chandigarh held in Oct., 1988; on i) Balloon dilatation of mitral and tricuspid valves.ii) Doppler echo evaluation of shunt lesions & iii) Doppler echo evaluation of valvular lesions; participated and chaired sessions in a symposium in surgery of L-R shunts - Non invasive assessment in the annual conference of CSI and ATCVSI held at New Delhi Nov.1988 and spoke on "Mitral valve balloon dilatation

current status" in the update in Cardiology - eastern zonal conference held at Calcutta July 1988.

Dr L.M.Srivastava gave a lecture on "Complement system" at the National Institute of Immunology, New Delhi and an invited talk in the CME programme of the 13 annual conference, U.P. Chapter, Indian Orthopedic Assoc., Saharanpur in March, 1989.

Dr Talwar participated in a symposium on 'Ischaemic heart disease' on the subject 'Calcium channel blockers in clinical practice' at PGI, Chandigarh. In an international symposium on 'Aortoarteritis' spoke on the 'Utility of endomyocardial biopsy in Takayasu's aortoarteritis and role of immunosuppressive therapy'. and in a symposium on 'Newer techniques in Cardiology' spoke on 'Techniques of endomyocardial biopsy and evaluation of myocarditis. In a symposium on 'Coronary artery disease' held by CSI (Delhi branch) spoke on 'Indication of coronary angiography'. In an update on arrhythmia spoke on "Mechanism & investigation of supraventricular arrhythmia" and "Arrhythmia associated with WPW syndrome and their treatment. In a symposium on 'Pacemaker" at the annual Cardiological Society meeting spoke on "antitachycardia pacemakers". "Power spectral analysis in myocardial infarction" in the first 'national conference in Biomechanisms".

Dr. R Tandon gave talks on congestive cardiac failure - newer trends in management in an update in Pediatrics at AIIMS, December 1988; Acute rheumatic fever - diagnosis and management and newer trends in the management of congestive cardiac failure in the U.P.Chapter, Indian Academy of Pediatrics, Varanasi, February 1989, Acute myocardial infarction : diagnosis, and Diagnosis of cardiac malpositions in a Cardiology update organised by NAMS at BHU Varanasi in March 1989; Diagnosis of acute myocardial infarction in a CME program on the foundation day ceremonies of the dept. of Cardiology KGMC Lucknow March, 1989.

Dr. P. Venugopal participated in the debate "Surgery in triple vessel disease with normal LV

function at the annual conference of C.S.I., Delhi branch, April 1988; gave a talk on "Surgery for arrhythmia" in the CME programme of joint annual meeting of CSI and ATCVSI in November 1988; chaired a session on "Surgical treatment of CAD" at Chandigarh in the 2nd annual conference of ATCVSI; chaired a session in the symposium interventions in acute myocardial infarction held in Feb. 1988 .

Dr. Wasir gave lectures on "Mild hypertension - current concepts in management" during the CSI-Delhi branch annual meeting April, 1988. Effect of antihypertensive drug therapy on serum lipids: in the symposium on "Contemporary issues in management of hypertension" August 1988. Newer aspects in management of hypertension - at the Association of Physicians of India - Delhi branch - Aug. 1988. Pitfalls in the management of precordial pain - the annual meeting of IMA, New Delhi Aug.1988. Cardiac rehabilitation - aims and means - at the annual meeting of IMA, N.Delhi Aug.1988. The use of diuretics in modern antihypertensive therapy - in a symposium on "Current concepts in the use of diuretics," Diltiazem in total ischemic burden - therapeutic implications - in the Indo-French symposium on Diltiazem- Nov, 1988 and on "hypertension in the young - investigations" at the CSI annual meeting Nov., 1988.

Three postgraduates (2 from LHMC and one from Sher-e-Kashmir Institute Srinagar) were provided short term training in Cardiac Anaesthesia.

Mr S.S.Malla, Asstt. Professor, Tribhuvan University, Kathmandu had a two week training in the Cardiac biochemistry laboratory.

23 doctors, 12 nurses, 2 technicians and 1 dietician were provided two weeks to four months training in various invasive and non-invasive facilities of cardiology. They were from various public sector, undertakings, institutions as well as from Nepal, Afganistan and Bangladesh.

RESEARCH

Research Completed

"Heparin assay" for regulation of heparin and protamine dosage during open-heart surgery (Anaesth)

Heparin & protamine assay by Hepcon (R) system used in 50 patients undergoing coronary artery bypass grafting, was compared with ACT technique for regulation of heparin and protamine dosage. Dose of heparin to maintain adequate ACT levels was significantly less with Hepcon (R) system and heparin reversal at the end of CPB was more accurate with the new technique. There was a significant reduction in post operative drainage. The technique can be of use in patients with coagulopathy, in patients who are on anti-coagulants and heparin resistant patients.

Causes and prevention of jaundice after open heart surgery(Anaesth).

All the patients undergoing open-heart surgery in the year 1987 to 1988 were studied to find out the incidence of jaundice. It was found that in a majority, the jaundice was haemolytic type and was not clinically important. Auto transfusion produced a significant reduction in incidence and severity of jaundice.

Role of ketamine for poor risk cardiac patients (Anaesth)

Ketamine was used for inducing anaesthesia in 50 poor risk cardiac patients, having unstable cardiovascular system, and was found to maintain good cardio-vascular stability without significant increase in rate pressure product.

Endomyocardial biopsy study in acute rheumatic fever (Card.. Path.)

The project was initiated with the objectives of:
i) evaluating histopathological and immunohistochemical

characteristics of acute rheumatic myocarditis in man, before and after institution of immunotherapy.ii) to evaluate the diagnostic role of endomyocardial biopsies in acute rheumatic fever and iii) to compare immunohistochemical picture in peripheral blood and endomyocardial biopsy in an attempt to understand the pathogenetic mechanisms. The first ever prospective study of its kind was conducted on 70 patients of rheumatic fever. The study has identified specific and nonspecific features for rheumatic myocarditis and has established biopsy as a safe and diagnostic procedure in rheumatic fever. It has demonstrated macrophage origin of Aschoff cells and possible antigen presenting or cytotoxic role for these cells. Cytotoxicity has been suggested as possible mechanism for carditis. Ongoing myocarditis has been demonstrated even 12-24 weeks after the institution of immunotherapy recommending reappraisal of immunotherapy.

Intersalt an international study of electrolyte excretion and blood pressure(Card)

The Intersalt study a 52 centre international collaborative study organized by the International Society and Federation of Cardiology (ISFC), included AIIMS from India. The relation between 24 hour urinary electrolyte excretion and blood pressure was studied in 10079 men and women aged 20-59 using a highly standardised protocol and extensive quality control. Relation between electrolyte excretion and blood pressure were studied in individual subjects within each centre and the results of the regression analyses pooled for all 52 centres. Relations between population median electrolyte values and population blood pressure values were also analysed across the 52 centres. Sodium was significantly related to the slope of the blood pressure with age but not to median blood pressures or prevalence of high blood pressure. Potassium excretion was negatively correlated with blood pressure in individual subjects after adjustment for confounding variables. The sodium to potassium ratio followed a pattern similar to that of sodium. Body mass index and heavy alcohol intake had strong, significant, independent relations with blood pressure

in individual subjects.

The public health implications of Intersalt data are that if abitudinal diet is both lower in sodium and higher in potassium, with lower alcohol intake and with less obesity, average population systolic blood pressure would be lowered by 5 mm Hg. This corresponds to a 9% lower risk of death from coronary heart disease (CHD) and 14% lower risk of stroke death. Intersalt data also suggest that with 100 mmol/day lower sodium intake over the life span, average increase in population systolic blood pressure would be less by 9 mm Hg. corresponding at age 55 yrs to a 16% lower risk of subsequent CHD death and 23% lower risk of stroke death.

Coronary artery disease (CAD) in Indians with valvular heart disease (Card, Card.Radiol)

Coronary angiography was performed in 100 consecutive patients with valvular heart disease and age over 40 years. Significant CAD was present in 23 patients. 55% of patients with angina had CAD as against 8.8% without angina. CAD was present more often with aortic stenosis (33%) and multivalvular disease (25%) than mitral stenosis (10.3%) or aortic regurgitation (8.7%). Angina as an indicator of the presence of CAD had a sensitivity of 74%, specificity of 81%, positive predictive value of 55% and negative predictive value of 81%.

Experience with exercise radionuclide ventriculographic (RNV) studies for evaluating patients post percutaneous transluminal coronary angioplasty (Card, Nuc Card).

35 patients with single vessel disease who underwent PTCA were studied before and after (4-16 weeks) intervention. There was a significant improvement in the LVEF post exercise and disappearance of the exercise induced regional wall motion abnormalities following angioplasty. Exercise RNV provides an objective evidence of improvement in patients who underwent a successful PTCA.

Experience with percutaneous transluminal coronary angioplasty (PTCA) - A follow up study:(Card, Card, Radiol)

180 patients have undergone PTCA during the period (Nov 1986 March 1988), 33% had multiple vessel disease. The primary success rate for single vessel disease was 93%, for multivessel disease with 'culprit' vessel dilatation 93.5% and for multiple vessel disease with multiple dilatation 87%. Emergency CABG was required in 2.6% patients 3% of patients with acute abrupt closure were treated with repeat angioplasty. The symptomatic & objective evidence of ischemia alleviation was very gratifying. During the follow up period 30 patients, have been restudied, 10 had evidence of restenosis, 8 have been redilated successfully. The experience with PTCA at AIIMS has shown very encouraging short term results, restenosis is however emerging as a significant problem but it is amenable to redilatation.

Experience with rate responsive pacing activity as a sensor: serially assessed by treadmill testing:(Card.)

24 patients with rate responsive activity sensing VVI pacemakers have been studied. The maximum treadmill time(MTT) was 27% larger in rate responsive pacing mode when compared with VVI mode. The increase in MTT was maximum in those patients who had underlying left ventricular dysfunction.

Electrophysiologic studies in patients with hypertrophic cardiomyopathy (Card)

35 patients have been studied by detailed electrophysiological studies. The abnormalities detected were inducible VT in 10%, inducible SVT in 7.5%, evidence of short AV node refractory period in 20%, concealed bypass pathways in 3%. These abnormalities have an important bearing on the long term management & prognosis.

Evaluation of spatial 'R' max changes in exercise testing pre-exercise versus post exercise measurements(Card.)

Twenty male patients with coronary heart disease (age 38-61 years) and 9 control male subjects (age 32-65 years) were studied. Orthogonal leads, X,Y,Z were recorded using corrected Frank lead system on a stereokinematic Vectorcardiograph (Tonnie's). Spatial 'R' max increased from 0.1 to 0.6 mV in 8/9 control subjects and decreased or showed no change in 18 of the 20 patients with coronary heart disease. In the patient group the mean value at end exercise ($0.98 \pm 3.4\text{mV}$) was significantly less ($P < 0.01$) as compared to pre-exercise value ($1.09 \pm 0.2\text{mV}$). Our preliminary observations indicate that with exercise 'R' max decreases or shows no alteration in height in patients with coronary heart disease whereas it increases in normal subjects.

Spatial vectorcardiogram in acute inferior wall myocardial infarction its utility in identification of patients prone to complete heart block(Card.)

Spatial vectorcardiography was performed in 28(22 male, 6 female: Age 36-78 years) consecutive cases of acute inferior wall myocardial infarction during sinus rhythm within 24 hours of admission. During the hospital course, 15 patients developed transient complete heart block and 13 patients did not. The direction of QRS loop inscription in the 3 planes did not differ between the two groups. The values for elevation angle of spatial 'R' max cardiac vector were markedly different between the two groups. The spatial R maximum elevation angle ranged from 0 to -35° , was negative superiorly directed in 14 of the 15 patients with complete heart block whereas it ranged from -10° to $+75^\circ$ was negative (superiorly directed) in only 2 of the 13 patients without this complication. Thus it appears that negative elevation angle of spatial R maximum cardiac vector in patients of inferior wall myocardial infarction may indicate proneness to complete heart block.

Inflammatory myocarditis in aortoarteritis and role of immunosuppressive therapy(Card, Path)

Endomyocardial biopsy (EMB) tissue obtained from right ventricle was studied in 21 patients (age 5-28 yrs, male 5, female 16) with aortoarteritis. EMB revealed features of inflammatory myocarditis in 12 patients. Immunosuppressive therapy (IST) (Prednisolone 1mg/kg + Cyclophosphamide 2 mg/kg) >12 weeks resulted in clinical and haemodynamic improvement (pulmonary artery pressure fell from 36.4 ± 11 to 29 ± 15 mmHg, pulmonary artery wedge 23.2 ± 7 to 17.6 ± 10.5 mmHg, left ventricular ejection fraction increased from 13.4% to 49% Improvement in myocardial morphological changes were found on histology. IST appears useful in patients with aortoarteritis with inflammatory myocarditis.

Inflammatory myocarditis (IM) presenting as acute myocardial infarction(Card,Path)

IM is a diffuse disease presenting as myocardial failure or arrhythmias. If the inflammation is localised and severe enough to result in myocardial necrosis, the myocarditis may mimic myocardial infarction. This presentation is not widely recognized. RV endomyocardial biopsy performed in 4 young patients (age 28-30 yrs) who presented with myocardial infarction revealed inflammatory myocarditis (IM). The coronary angiograms were normal in these patients. It is emphasized that IM may present as myocardial infarction.

Persistent atrial standstill (PAS) a rare electrophysiological abnormality(Card,Path)

PAS is a rare electrophysiological abnormality characterized by absence of atrial activity and unresponsiveness to atrial stimulation. 5 such patients have been evaluated. Electrophysiological studies revealed PAS of both atria in 4 and of only right atrium in the 5th patient. Endomyocardial biopsy of right ventricle revealed inflammatory myocarditis (1) endomyocardial fibrosis(1) amyloidosis(2) and

normal morphology (1). All patients were given permanent pacemaker because of low escape rate.

Role of endomyocardial biopsy in patients with restrictive heart disease(Card,Path)

The precise diagnosis in patients with restrictive hemodynamic feature is critical in their management. Clinical presentation and various invasive/noninvasive investigations are usually helpful to arrive at a definite diagnosis in most of the cases. But specific diagnosis can be made in some only with the help of histological features of endomyocardial biopsy. Endomyocardial biopsy studies in 27 patients with restrictive heart disease revealed that EMB was useful to arrive at specific diagnosis where other evaluations had failed.

Endomyocardial biopsy in patients with ventricular tachyarrhythmia of unexplained aetiology(Card,Path)

Endomyocardial biopsies taken from right ventricle were studied in 11 patients (8 male, 3 female, age 12-46 yrs) with ventricular tachycardia without apparent structural heart disease. Myocardial morphology was uniformly abnormal. Inflammatory myocarditis was noted in 5 (Gr.A) and nonspecific abnormality was found in the remaining 6 patients (Gr.B). Left ventricular ejection fraction was low in Gr. A (29 ± 8) as compared to Gr B. (55.5 ± 7). One patient improved in arrhythmia control after immunosuppressive therapy (IST). Further studies to assess the role of IST in patients with underlying myocarditis is needed.

Percutaneous balloon pulmonary valvoplasty (PBPV)(Card, Card.Radiol)

Seventy patients underwent PBPV (age 6 month to 53 years) the peak transvalvular gradient fell from 111.5 ± 50.8 to 56.5 ± 47.7 mm ofHg. Follow up cardiac catheterisation showed further fall in the gradients in 23/28 patients at 3-6 months and 8/20 patients at 1-2 yrs.

Mitral valve balloon dilatation(Card, Card.Radiol)

We attempted percutaneous mitral valvoplasty in 50 patients (27 F & 23 M) (age 10-38 yrs) with rheumatic mitral stenosis. The procedure could be completed in 40 cases. Single balloon technique was used in 28 cases and in 12 cases double balloon technique was used. There was significant relief of stenosis in 39/40 patients and the hemodynamic benefit was maintained in the follow up studies in most cases.

Aortic valve balloon dilatation in non-calcific aortic stenosis (Card, Card. Radiol.)

In 25 cases, 1-36 yrs of age successful aortic valve balloon dilatation was done. The aortic gradients fell from 111.6 ± 34.5 to 44.6 ± 20.6 . The aortic valve area increased from 0.3 ± 0.07 cm²/m to 0.69 ± 0.2 cm²/m. Follow up cardiac catheterisation in 13 and Doppler studies (n=25), 1-23 months later showed restenosis in 2 patients.

Utility of Doppler echocardiography in evaluating patients with coarctation of aorta(Card)

Reliability of Doppler examination in the estimation of pressure gradient across the coarctation of aorta was evaluated in eighteen closely coupled catheterization and Doppler studies. The mean Doppler estimated gradient (41.3 ± 17.2 mm of Hg) and peak to peak gradient at catheterization (37.4 ± 20.7 mm of Hg) correlated well ($r=0.92$). The Doppler gradients (mean 42.1 ± 17.2 mm of Hg) also correlated well ($r=0.82$) with maximum instantaneous gradient at catheterization (mean 42.8 ± 21.4 mm of Hg). Doppler echocardiography closely estimates pressure gradient in aortic coarctation and can be used both in the diagnosis and in the follow up of patients after angioplasty.

Detection of coronary artery disease: usefulness of dipyridamole equilibrium blood pool scintigraphy (Card., Nuc Card, Card.Radiol)

Serial equilibrium blood pool scintigraphic

studies were performed before and every 5 minutes for 20 minutes after Dipyridamole infusion (Dip EBPS) in 12 patients of stable angina. Dipyridamole was administered in a dose of 0.56 mg/kg over 4 minutes. The patients were also subjected to exercise treadmill testing (TMT), exercise equilibrium blood pool scintigraphy (Ex EBPS) and selective coronary angiography. Four patients had single vessel disease, 4 had double vessel disease, 3 had triple vessel disease and one had normal coronaries. The sensitivity of TMT, Ex EBPS and Dip EBPS was 81%, 81% and 72% respectively while positive predictive value was 90%, 100% and 100% respectively. Thus DipEBPS though slightly less sensitive was highly specific in detection of coronary artery disease, and offers a useful alternative for evaluation of patients with angina pectoris especially in those who cannot exercise such as patients with osteoarthritis, amputees, and with intermittent claudication.

Coronary artery disease in Indian women-correlation of clinical and angiographic findings (Card, Card.Radiol.)

Clinical and risk factor profile of 61 consecutive female patients subjected to coronary angiography was analysed. Coronary angiography showed single vessel disease (SVD) in 19.7%, double vessel disease (DVD) in 9.8%, triple vessel disease (TVD) in 47.5% and normal coronary arteries (NC) in 23.9%. Risk factor profile of 47 patients with angiographic coronary artery disease (Gr.I) included hypertension (HT) in 55%, diabetes mellitus (DM) in 36%, postmenopausal state in 89%, positive family history in 55%, obesity in 55%, hypercholesterolaemia in 27% and smoking in 4%. Risk factors in 14 patients with NC (Gr.II) included HT in 21%, DM in 7%, positive family history in 42%, obesity in 42%, post-menopausal state in 64%, hypercholesterolaemia in 35% and smoking in none. The clinical presentation in Group I was: Unstable angina in 55% stable angina pectoris 29%, myocardial infarction 7% and atypical chest pain 4%. In Gr. II, half the patients presented with atypical chest pain. the other modes of presentation included unstable angina 36%, stable angina pectoris and myocardial infarction in 7% each.

Positive exercise electrocardiography (Ex-ECG) or exercise radionuclide studies (EX-RNV) were present in 33/35 patients in Gr.I and in 7/9 Gr.II patients. HT, DM and post-menopausal state were important risk factors in women. Ex-ECG and Ex-RNV may frequently be false positive in women if the chest pain is atypical.

Value of exercise score and ST segment time profile analysis in identifying false positive treadmill test (Card)

Seventeen patients with strongly positive treadmill test using ST segment criteria who had angiographically normal coronaries (8 patients) or single vessel disease (9 patients) were reanalysed by the exercise score method (derived from a multivariate analysis of 18 exercise parameters); by ST segment time course analysis; and were compared with 19 matched control with strongly positive treadmill tests and multivessel disease (MVD)- true positives. All patients of MVD were correctly identified by the exercise score. Of the nine patients with single vessel disease all had typical ST segment time profile; 6/9 were correctly identified as mild disease by the exercise score. All 3 patients who were incorrectly identified had proximal LAD stenosis. Of the 8 patients with normal coronaries none had severe abnormality by exercise score. Seven of 8 had atypical ST segment time course (ST shift only during exercise with early normalization), suggesting false positive tests. We conclude that exercise score reliably distinguishes mild disease from severe coronary disease. Analysis of the time profile of ST shift correctly identifies patients with normal coronaries who had false positive ST shifts.

Aluminium phosphide poisoning clinical toxicity and outcome in eleven intensively monitored patients(Card.)

Eleven consecutive patients with severe toxicity to aluminium phosphide were prospectively studied. Following admission into an intensive care unit they underwent continuous haemodynamic monitoring which included Swan-Ganz and intra-arterial catheterization. Two hourly haematocrit estimation, radionuclide ventri-

culography and percutaneous endomyocardial biopsy were carried out in selected patients. Signs of early (first 24 hours) toxicity included severe acidosis, severe peripheral capillary leakage, electrocardiographic and enzyme evidence of global myocardial injury and a depressed left ventricular ejection fraction. The most important manifestation of late (after 24 hrs) toxicity was the adult respiratory distress syndrome. Nine of the 11 patients died: 3 with progressive hypotension, 4 following adult respiratory distress syndrome, 1 after aspiration and 1 due to gastrointestinal bleeding.

Association of coronary calcification with obstructive disease in coronary arteries in Indian patients (Card. Card. Radiol.)

A total of 1150 consecutive patients (1052 males and 98 females; age 51.2 ± 10.1 years) with suspected coronary artery disease (Group I) were subjected to fluoroscopy for detection of coronary artery calcification (CAC) and coronary angiography. Another group (Group II) of 120 patients (95 males and 25 females; age 51.4 ± 9.4 years) catheterized for cardiac diseases other than coronary artery disease (CAD) were subjected to the same protocol of fluoroscopy and coronary angiography to exclude incidental CAD in view of their age. CAC was present in 240 patients (20.2%) in group I. Of these, 200 (83.4%) had triple-vessel disease (TVD); 20(8.3%) had double-vessel disease (DVD); 19(7.9%) had single vessel disease (SVD) and 37(15.4%) patients had left main coronary disease (LMCAD). Only one of these patients had insignificant CAD considered as 'normal' coronary arteries (NC). Incidence of LMCAD, TVD, DVD, SVD and NC in patients without CAC was 4.4% 56.3%, 18.2%, 14.0% and 1.5% respectively. Incidence of CAC in patients with LMCAD, TVD, DVD, SVD and NC was 48.1%, 28.1%, 10.8%, 13.0% and 1.0% respectively. In group II (n=120), 24 patients (20%) had CAD, CAC was present in 5 patients with CAD (20.9%), and in two patients without CAD (2%). CAC is relatively uncommon in Indian CAD patients. Its presence, however, indicates severe multivessel disease.

Epicardial Holter monitoring : an improved modality for arrhythmia diagnosis after open heart surgery:(CTVS)

Surface ECG, epicardial Holter and surface Holter recordings were performed in 72 patients in the immediate post-op. period. Arrhythmias misdiagnosed or not picked up by surface Holter were correctly diagnosed by epicardial Holter. It was found that epicardial Holter recording was significantly superior ($P<.001$) to surface Holter monitoring in the analysis of the nature of premature beats, whether atrial or ventricular in origin.

Myocardial perfusion with antegrade and retrograde infusion of TC99M labelled macroaggregates - a clinical and experimental study :(CTVS, Nuc Card)

The study was performed to evaluate adequacy of myocardial protection by antegrade cardioplegia in patients with critical coronary stenosis, and to find the better route for retrograde myocardial perfusion. 14 patients with CAD were studied by injecting TC^{99m} labelled macroaggregates in the coronary arteries.. Distribution of radioactivity in perfusion scans was compared with coronary arteriograms. To find out the better route for retrograde perfusion bovine heart preparations were used . This study proved (1) the inadequacy of the antegrade route to provide uniform myocardial perfusion in the presence of CAD, (2) superior myocardial perfusion achieved by right atrial infusion as opposed to selective retrograde coronary sinus perfusion.

Endomyocardial fibrosis - An endomyocardial biopsy study: (Card, Path)

Endomyocardial biopsies (EMB) were performed in 14 angioproven cases of endomyocardial fibrosis (EMF). Endocardium showed moderate to marked thickening in 10/14 cases while it was normal in 4. No "zonal /layering" pattern of the endocardium as is seen at autopsy was detected in biopsy material. Thrombus,

inflammatory granulation tissue and inflammatory cells were also not encountered.

Quantitative histopathological and ultrastructural evaluation of congestive heart failure of unknown origin employing endomyocardial biopsy (Card, Path).

Endomyocardial biopsies from 25 patients of congestive heart failure of unknown origin diagnosed clinically as dilated cardiomyopathy were analysed. Quantitative analysis was done by IBAS KONTRON image analyser. Several morphologic measurements of the myofibres and interstitium were made and correlated with the hemodynamic data (Pulmonary artery mean pressure; left ventricular end diastolic pressure and left ventricular ejection fraction). Percentage area occupied by muscle fibres was reduced with a corresponding increase in fibrosis of the interstitium. This parameter showed a good correlation with the LVEF and an inverse correlation with the LVEDP.

Influence of buscopan on the adverse reactions to contrast media in digital subtraction angiography (Card. Radiol.)

We have analysed the ability of prior intravenous buscopan (byoscine butylbromide) injection to influence the incidence and severity of adverse reactions to intravascularly administered iodinated, ionic contrast medium in 258 consecutive digital subtraction angiographic (DSA) examinations. The adverse reactions occurred in 7.9 percent of intravenous and 2.4 percent of intraarterial DSA examinations. The incidence of adverse reactions with and without prior buscopan injection during intravenous DSA examinations was 8.1 percent and 7.1 percent respectively and during intraarterial DSA examinations was 5.7 and 2.5 percent respectively. Prior intravenous injection of buscopan has no influence on the incidence or severity of adverse reactions to intravascular contrast media.

The spectrum of eye involvement in adverse reactions to contrast media (Card. Radiol)

We describe the spectrum of eye changes occurring after intravascular administration of an ionic, iodinated water-soluble contrast medium during the diagnostic evaluation of five adult patients with no previous history of allergy to iodinated contrast media. the adverse reactions observed included bilateral blurring of vision, unilateral orbital, oedema (2) and bilateral intense conjunctival congestion (1). The latter two adverse reactions responded well to treatment with steroids and antihistaminic agents lending credence to the hypothesis that these reactions are probably allergic in nature. Awareness of these eye changes is essential in order to prevent potentially lethal complications that may develop following subsequent contrast injections in primed individuals.

Pulmonary artery involvement in aortitis (Card. Card.Radiol.)

We have studied the pulmonary arterial anatomy in 44 patients of Takayasu's arteritis residing in North India by utilising intravenous digital subtraction angiography. All the examinations were done on out-patient basis by utilizing centrally delivered, small-volume, bolus injection of an ionic, water soluble contrast medium. No complications related to the procedure were encountered and diagnostically adequate images of the pulmonary arteries were obtained in 42/44 instances (95.4%). Angiographically evident pulmonary arterial involvement was seen in 6/42 patients (14.3%). The pulmonary arterial involvement was not suspected clinically in any patient and the chest x-rays were abnormal in only two of the six patients with abnormal angiograms (33%). We conclude that pulmonary arterial involvement in Takayasu's arteritis is distinctly uncommon in the North Indian patients. This may be related to the racial and geographic predilections associated with Takayasu's arteritis. Intravenous digital subtraction angiography is usually adequate for the diagnostic evaluation.

Aneurysm formation in aortoarteritis (Card. Card.Radiol.)

We studied the incidence and patterns of aneurysm formation in 88 consecutive resident North Indian patients of Takayasu's arteritis and reviewed the pertinent literature for known racial predilection for aneurysm formation. Pan -aorto-arteriography was performed in all the patients by utilizing digital subtraction technology and intravenous or intraarterial route. Eight patients showed arterial aneurysms (9.1%) and the saccular aneurysms were the most frequently encountered morphologic variety (75%). Aneurysm formation in Takayasu's arteritis is said to have a predilection for the Indian, African and Thai races with the fusiform variety being the most common. In contrast , we found that the aneurysms are more common in patients reported from Israel and Thailand. The incidence in the Indian patients is almost similar to that in patients from Japan and China. The saccular variety of aneurysms predominates in the Indian patients.

Limitations in the plain chest radiographic diagnosis of thrombosis of the left atrium or its appendage in rheumatic mitral stenosis (Card. CTVS. Card.Radiol)

We have assessed the diagnostic accuracy of a flat or concave left mid-cardiac border (the region of the left atrial appendage) on conventional posteroanterior chest roentgenograms as a predictor of the presence of thrombosis of the left atrium or its appendage in 80 patients of rheumatic mitral stenosis who subsequently underwent open heart surgery 46 patients (Group I) were found to have left atrial thrombosis at surgery whereas 34 patients (Group II) showed no evidence of thrombosis. Only 22 out of 46 patients in Group I showed flatness or concavity of the left mid-cardiac border (positive test; sensitivity - 48% specificity - 53%, predictive value - 58%; false positive in 42%, false negative in 57%). Contrary to some previous reports, the presence of flatness or concavity in the left mid-cardiac border in the conventional posteroanterior chest roentgenograms in patients with

rheumatic mitral stenosis is, in our experience, not a reliable indicator of the presence of thrombosis in the left atrium or its appendage.

Angiocardiographic diagnosis of left atrial thrombosis in patients with mitral valve disease (Card., Card.Rad)

The utility of angiocardiography in the diagnosis of left atrial and or its appendage thrombosis (LAT) was studied in ninety eight patients with or without LAT at surgery. Left coronary arteriography in this selected group of patients had a predictive value of 88.5% (sensitivity 65.7%, specificity 94.6%) in the diagnosis of LAT. Levocineangiography had a predictive value of 88.2% (sensitivity 78.9%, specificity 90.5%). On the whole angiographic predictive value of LAT was 84.8% (sensitivity 70%, specificity 94%). The duration between angiography and surgery appears to influence the results.

Atypical chest radiographic sign in atrial septal defect(Card.Radiol.)

The clinical features of atrial septal defect (ASD) in children and young adults are usually typical and the plain chest radiographic findings are characteristic and well documented. However, in the older age group, the clinical manifestations of ASD are often altered by the associated valvular or ischemic heart disease and the characteristic radiographic features of ASD are not frequently seen. We have undertaken the present study to analyse the spectrum of atypical radiographic changes in the older patients of ASD. During the last ten years, 235 patients with clinically suspected ASD underwent cardiac catheterisation of these 70 patients were found to have associated significant congenital cardiac anomalies and were therefore, excluded from the study. The chest roentgenograms of the remaining 165 patients obtained just prior to cardiac catheterization were evaluated and the findings correlated with the haemodynamic and angiographic data obtained at subsequent cardiac catheterization. We found that the characteristic

radiographic features of ASD were only infrequently seen in the elderly patient population and the associated mitral valve prolapse, rheumatic mitral valve disease, coronary artery disease and left ventricular dysfunction were responsible for the altered radiographic features.

The angiographic abnormalities of the left ventricle in atrial septal defect (Card. Card.Rad)

We have evaluated the angiographic abnormalities of the left ventricle in 52 consecutive patients of atrial septal defect (ASD) who underwent left ventricular angiography during their diagnostic evaluation. The left ventriculograms were obtained in the right anterior oblique view by a left heart catheter placed in the mid-cavity of the left ventricle in each patient and also in the left anterior oblique view in most patients. The left ventriculograms were considered normal in five patients. Among the 47 abnormal angiograms, the left ventricle was enlarged in 40 patients, and mitral valve prolapse and/or mitral regurgitation were present in 31 patients. The other left ventricular abnormalities included posterior displacement, inferior wall irregularity with extrinsic impressions and global hypokinesia. Preoperative left ventriculography should be a part of the diagnostic assessment in all patients of ASD since morphological abnormalities of the left ventricle are frequently seen in these patients.

Role of digital subtraction angiography in the evaluation of systemic hypertension in children (Card. Card.Rad.)

Ten children with clinically suspected renal and renovascular hypertension were studied by digital subtraction angiography (DSA). Six patients were studied by intravenous DSA (IV-DSA) utilizing central venous injections of small volume bolus of contrast material (0.5 ml/kg body weight) delivered at a high flow rate (18-20 ml/sec) during each examination. The remaining four patients were studied by intraarterial DSA (IA-DSA) utilizing small calibre catheter and

intra-arterial injections of very small amounts of dilute contrast material. The procedure was done on an out-patient basis in all patients and no complications related to the procedure were encountered. Optimal quality diagnostic images of the arterial tree were obtained in all patients. We feel that IV-DSA should replace rapid-sequence intravenous pyelography and conventional film-screen arteriography in the diagnostic protocol of young patients with renovascular hypertension.

Digital angiographic evaluation of complete abdominal aortic occlusions (Card. Radiol)

During the last two years, we have studied thirteen patients with complete abdominal aortic occlusion by intravenous digital subtraction angiography utilizing centrally delivered small-volume bolus injections of an ionic, water-soluble contrast medium. No complications related to the procedure were encountered and diagnostic quality arterial images were obtained in all the patients. Intravenous digital angiography is ideally suited for the evaluation of patients with complete occlusion of the abdominal aorta.

Place of digital subtraction angiography in the diagnostic evaluation of peripheral vascular disease (Card. Radiol)

We studied fifty consecutive patients of obstructive peripheral vascular disease by digital subtraction angiography utilizing intravenous or intraarterial route. The venous angiography was performed by utilizing centrally administered (right atrial) small-volume, bolus injections delivered at high flow rates. The arterial angiography was done by placing a small calibre catheter in the ipsilateral femoral artery via contralateral transfemoral route, and hand injections of small amounts of diluted contrast material. No complications related to the procedure were encountered. Diagnostically adequate arterial images were obtained in venous and arterial studies. The most common site of arterial obstruction

was in the leg arteries. It was often limited by the inability of digital angiographic machine to register the lower average radiation exposure. The utilization of additional aluminium filters helped overcome this limitation. Digital angiography is economical, safe, provides diagnostically adequate arterial images and should replace conventional film-screen arteriography in the diagnostic protocol of peripheral vascular disease.

Angiocardiographic evaluation of pulmonary arterial anatomy in tetralogy of Fallot (Card, Card.Rad)

We evaluated the angiographic abnormalities of the pulmonary arteries in 200 consecutive patients of tetralogy of Fallot. All the patients were studied by conventional right ventricular angiography in the right and left anterior oblique views. Thirty six patients (18%) showed a total of 61 pulmonary artery stenoses, 32 being severe (52%), 17 moderate (28%) and 12 mild (20%). Bifurcational stenoses were the most common (31), followed by stenosis of main, right or left pulmonary artery (22), combined central and peripheral stenosis (6), and isolated peripheral pulmonary artery stenosis (2). Nine patients showed segmental stenosis involving both right and left pulmonary artery. Three of them had left pulmonary artery atresia. The detailed preoperative evaluation of pulmonary arterial anatomy in tetralogy of Fallot is essential to ensure normalisation of the right ventricular pressure following total correction.

The angiographic spectrum of aortoarteritis in North Indian patients - a digital angiographic analysis (Card, Card, Rad.)

We studied the patterns of arterial involvement in 78 North Indian patients of Takayasu's arteritis (female 55, male 23, mean age 22.2 years) by panaorto-arteriography utilising digital subtraction technology. Most examinations were done on an out-patient basis by utilising centrally delivered small-volume, bolus venous injections. No complications related to the procedure were observed. Obstructive

arterial lesions were the most frequently encountered usually involving the abdominal aorta (74.3%). The thoracic aortic involvement was less common (24.3%). The renal arteries were the most frequently diseased branches of the aorta (50%), followed by the left subclavian artery (38.4%), the right subclavian, left carotid and the femoral arteries (20.3% each). The dilated form of lesions were uncommon (10.3%) and contrary to the previous reports, large aneurysm formation was seen in only 7.6% patients. However, small localized dissecting aneurysms, hitherto rarely reported, were seen in seven patients. In addition the pulmonary arterial involvement was found to be distinctly uncommon (9.7%). We conclude that Takayasu's arteritis in North Indian patients shows a predilection for obstructive involvement of the abdominal aorta and the renal arteries whereas large aneurysms and pulmonary arterial involvement are distinctly uncommon. the exact reasons for these regional angiographic differences are not clear.

The incidence and patterns of radiographically demonstrable calcification in endomyocardial fibrosis (Card. Card. Radiol)

We studied the incidence and spectrum of radiographically demonstrable cardiac calcification in 28 consecutive patients of endomyocardial fibrosis who subsequently underwent angiocardiography. Calcification was seen in seven patients (25%), involved the myocardium in five patients and both the myocardium and pericardium in two patients. Calcification, although hitherto described as rare in the clinical setting of endomyocardial fibrosis, is not uncommon in our patient population (25%) and predominantly occurs in the myocardium.

Feasibility of using pedicled skeletal muscle for myocardial replacement (CTVS)

The study was intended to evaluate the function of an artificial ventricle designed by us and powered by the Latissimus Dorsi(LD) muscle to function as an auxillary ventricle in a buffalo calf. The results

showed that the LD muscle was ideally suited for the purpose. It was conditioned by intermittent pacing for a period of six weeks , following this conditioning the muscle was dissected free, based on it's pedicle and transplanted into the thorax of a buffalo calf. An artificial ventricle was connected from the left atrium to the aorta. The LD muscle was wrapped around the artificial ventricle and stimulated. The muscle was able to sustain circulation through the artificial ventricle against the systemic resistance for a short period. A good pulse wave was obtained in the aortic tracing with stimulation of the LD muscle.

Autotransfusion of shed mediastinal blood following CABG surgery : a prospective study:(CTVS)

The efficacy of autotransfusion of shed mediastinal blood in lowering requirement of banked blood and its safety was studied prospectively in 50 consecutive patients, undergoing CABG. Total blood loss, incidence of re-exploration, consumption of banked blood, bilirubin level were compared with 50 matched patients operated earlier. Patients receiving autologous blood required significantly less banked blood. The clinical safety of the technique was confirmed by the lack of septic, haematological pulmonary, renal or hepatic complications.

Aortic valve replacement in patients with moderate to severe pulmonary arterial hypertension : (CTVS)

The result of surgery in 50 patients with pulmonary artery hypertension with aortic valve disease were analysed. Twelve patients had postoperative haemodynamic study and others had follow up echocardiography and doppler study. This group of patients do not carry any extra operative risk and show good long term recovery.

Design of a new left atrial cannula inserter :(CTVS)

A longitudinal slit is made in the LA cannula inserter at the bevelled end , so that the plastic LA cannula can be fitted into the slit. Both now can be

inserted into LA and the inserter can be removed leaving the plastic cannula inside. The cannula was used in 20 patients and found to be easier to put in with no chance of air embolism during the procedure.

A prospective study for arrhythmias following coronary artery bypass surgery : (Card, CTVS)

The incidence of arrhythmias and factors leading to their causation were studied in a group of 50 unselected patients undergoing CABG surgery. Surface Holter monitoring were done pre-op and both epicardial and surface Holter done on the 5th-7th post-op day. Ventricular ectopics were detected in 22% and atrial tachyarrhythmias were detected in 8%. Factors which were found to be significantly associated with arrhythmias (i) existence of diffuse CAD ($P < 0.01$) (ii) RCA endarterectomy ($P < 0.01$) (iii) average time per cardioplegia more than 20 minutes ($P < 0.001$).

LV function after CABG - evaluation by radionuclide ventriculography: (CTVS- Nuc.Med).

LV functions were measured by radionuclide ventriculography in 175 randomly selected patients who underwent CABG at 10 days to 5 year following surgery. Group 1 (n=90) had a pre-operative resting study and postoperative resting and exercise study. Group II (n=35 pts) had pre and postoperative resting and exercise study, Group III (n=50 pts) had only post operative resting and exercise study. Overall 93% of patients showed significant improvement in LV function.

Power spectral analysis of orthogonal Z lead in patients with recurrent ventricular tachyarrhythmia (VT) (Biophy, CTC)

Left ventricular systolic function in patients of Thalassemia major. (CTC, Pediat)

Detection of early myocardial ischemia - An experimental study in rats (CTC, Path.)

Static lung functions in mitral valve disease: (CTC, Med).

Effect of mitral valve replacement on pulmonary function tests :(CTC, Med)

Clinical and investigative profile of biopsy proven idiopathic myocarditis : (CTC, Med, Path, Microbiol. Nuc. Med)

Quantitative grading of Ex RNV for patients with CAD using multivariate discriminant analysis : (CTC, Nuc. Med.)

Research Continuing

Role of 'Norcuron' as a muscle relaxant for cardiac surgery(Anaesth)

'Norcuron' (Vecuronium) has been used for tracheal intubation of 105 patients undergoing cardiac surgery. It has been found that cardiovascular stability is maintained during intubation which has a great clinical significance specially in patients undergoing coronary artery bypass who have a higher risk of perioperative infarction.

Role of Buprenorphine as analgesic during open heart surgery (Anaesth)

Buprenorphine, a thebane derivative is given intramuscularly as pre-medication and additional intravenous doses during the surgery. It was found to produce adequate intraoperative and post-operative analgesia.

Percutaneous transluminal angioplasty for hepatic venous outflow obstruction:(Card., Card.Radiol)

Six patients (3 with incomplete IVC blocks and 3 with stenosed surgical cavo-atrial grafts) presenting with clinical features of hepatic outflow obstruction were subjected to balloon dilatation. There was a very significant fall in gradients in all the patients and

angiographic evidence of improvement of stenosed segments Follow up studies are in progress. It is planned to study more patients with hepatic venous outflow obstruction.

Epicardial Holter monitoring studies in patients after open heart surgery:(Card. CTVS)

112 patients have been studied. The analysis revealed that in 20% of cases epicardial Holter recording of atrial electrogram helped in arriving at the correct diagnosis of the arrhythmia. Epicardial Holter monitoring is a useful adjunct in correct interpretation of post operative arrhythmias in patients at high risk of developing disorders of rhythm.

Electrophysiologic profile of asymptomatic patients with Wolff Parkinson White(WPW) syndrome.(Card)

21 patients have been studied. The preliminary data suggest that most patients with asymptomatic WPW syndrome do not have inducible orthodromic supraventricular tachycardia. A significant number of such patients however have short effective refractory periods of accessory pathways.

Holter monitoring & electrophysiologic studies in patients with mitral valve prolapse.(MVP)(Card)

A prospective study of echocardiographically proven MVP of varying severity is being done. All the patients undergo a 24 hour ambulatory monitoring and invasive electrophysiological studies to document spontaneous and inducible arrhythmias and conduction defects. 25 patients have already been studied. The data are being analysed and compared with age and sex matched controls without evidence of MVP.

Endomyocardial biopsy(EMB) in patient with congestive cardiac failure(CCF) of unknown origin(Card, Path)

EMB is being carried out in patients with CCF to identify underlying myocarditis. The patients are

being further evaluated with immunosuppressive therapy. The clinical, echocardiographic, electrocardiographic and haemodynamic studies are being analysed and may serve as a marker of underlying myocarditis.

Spatial vectorcardiography in left bundle branch block(Card)

Spatial vectorcardiography is being evaluated in patients with left bundle branch block to define to high risk patients in this disorder. Initial observations are interesting and are being pursued further.

Role of immunosuppressive therapy in treatment of aortoarteritis.(Card., Path, Card.Radiol)

The usefulness of immunosuppressive therapy is being evaluated in patients with "Takayasu aortoarteritis". Only patient who present in the active phase of the disease as denoted by raised ESR are included in the study. Following I.V.DSA & endomyocardial biopsy the patients are followed with a combination of prednisolone and cyclophosphamide. It is planned to reevaluate the patients after one year of therapy to assess its effect on the arterial and myocardial lesions.

Short term effects of metoprolol in post myocardial infarction (MI) patients with left ventricular dysfunction(Card, Nuc Card)

Short term effects of oral metoprolol on ejection fraction (determined by radionuclide ventriculography) have been studied in 12 post MI patients with LV dysfunction ($EF < 40\%$). The resting EF (m 32.6%) did not alter significantly at 90 mts (acute study) or 4 weeks of oral metoprolol therapy in these patients. The preliminary results suggest that oral metoprolol does not depress the LV function in post MI patients.

Experience with membrane oxygenator during CPB:(CTVS)

Activated clotting time, prothrombin time, partial thromboplastin time, platelet count are being estimated immediately prior to surgery and immediately post operatively in fifty patients undergoing CABG surgery using membrane oxygenator. Blood trauma during CPB is assessed by plasma haemoglobin level. Post operatively subsystem analyses are carried out : Results will be analysed to see the effect of membrane oxygenator.

The fate of tricuspid regurgitation (TR) in patients with mitral stenosis after closed mitral valvotomy: (Cardiol, CTVS)

Severity of TR, various chamber sizes, pressure gradients across the mitral valve, tricuspid annular size, predicted PA pressure and LV function are being evaluated in 25 patients undergoing closed mitral valvotomy echocardiographically. These studies are being performed in each patient, pre-op, immediate post op and 6 months after operation. Results will be analysed to find out the factors that predict the outcome of TR after closed mitral valvotomy.

Epicardial and surface Holter monitoring in patients following Fontan's procedure (Card. CTVS)

Atrial arrhythmias are known to occur after Fontan's procedure. Aim of this study is to detect the arrhythmias in the postop period using epicardial Holter and subsequently at different periods using surface Holter monitoring in postop Fontan's procedure. Correlation of arrhythmias with different factors like right atrial pressure size, RA-PA anastomosis size, PA pressure and PA size is being done.

Prospective evaluation of tricuspid repair procedure early and long term results (CTVS)

This study is the continuation of a similar study done last year to evaluate more patients undergoing tricuspid valve repair procedure. The patients will be studied prospectively pre-op, immediate postop and

regularly at different time interval to see the efficacy of tricuspid valve repair.

Evaluation of results of mitral valve repair :(Card, CTVS)

Thirty five patients who underwent mitral valve repair are being evaluated for the efficacy of repair. All the patients were studied pre-op with echo-Doppler and at present are being evaluated at variable intervals 3 months-3 years following surgery. The data collected so far shows satisfactory result.

Histological and immunohistochemical characteristics of acute rheumatic myocarditis. A prospective endomyocardial biopsy study (Card, Path)

Thirty six EMB in 10 patients of acute rheumatic fever have been performed in an attempt to identify histopathological and immunohistochemical characteristics of rheumatic carditis, evaluate temporal changes during the course of the disease and assess the effects of immunotherapy. Aschoff nodules, histiocytic aggregates and collagen changes suggest the rheumatic process. Immuno-histology provides an evidence of cytotoxicity as the mechanism of carditis. Ongoing myocarditis has been noted even at 12 to 24 weeks after institution of therapy. Detailed evaluation of the latter change is in progress.

Evaluation of natural and artificially induced subcutaneous nodules in acute rheumatic fever (Card, Path)

Histopathological and immunohistologic studies are being performed on naturally occurring and artificially induced (autologous buffy coat injection) subcutaneous nodules in acute rheumatic fever. Pathologic characters of 6 natural and 3 artificially induced nodules analysed so far appear to be similar.

The place of interventional radiological procedures in the management of arterial insufficiency of the lower limbs (Card., Card Rad.)

We plan to evaluate the role of percutaneous transluminal angioplasty and/or selective intra-arterial urokinase in the management of 50 consecutive patients with acute or chronic arterial insufficiency of the lower limbs. We have so far performed 19 procedures in 15 patients. The lesions involved the common iliac artery in 13 patients, lower abdominal aorta in two and the iliac and femoral artery in one patient. 17 of these procedures were considered as successful. No complications related to the procedure have been encountered.

Place of percutaneous transluminal angioplasty in the management of left subclavian artery obstruction in Takayasu's aortitis (Card, Card Rad)

We are evaluating the role of percutaneous transluminal angioplasty (PTA) in the management of clinically symptomatic stenosing lesions of the subclavian arteries in 25 consecutive patients. We have so far performed six procedures by antegrade approach. One patient developed symptoms related to ipsilateral vertebral artery embolization but had no permanent neurological deficit. The examinations have, otherwise, been uneventful and haemodynamic and angiographic improvement was observed in 4/6 patients.

Role of percutaneous transluminal angioplasty in the management of systemic hypertension in aortoarteritis (Card, Card, Rad)

We are evaluating the role of percutaneous transluminal angioplasty (PTA) in the management of 25 consecutive patients of Takayasu's arteritis with systemic hypertension and haemodynamically significant aortic and/or renal arterial stenosis. We have so far performed PTA in three patients. No complications related to the procedure have been encountered and initial functional improvement has been observed in all the three patients.

Incidence and angiographic aspects of post-traumatic pseudoaneurysms of the extracranial carotid arteries (Card. Rad)

Post-traumatic pseudoaneurysms involving the extracranial arteries are rare and have only infrequently been reported before. During the last ten years at our centre, seven such patients underwent angiography for the pre-operative evaluation. The role of conventional angiography and intravenous digital subtraction angiography in the diagnosis and follow up of these patients is being done.

Centre for research on RF-RHD (Anat, Biostat, CTC, Med)

ICMR multicentric study on community control of RF & RHD

Clinical, immunological, virological and morphological studies in dilated cardiomyopathy and role of betablockers in the management (CTC, Microbiol, Path)

Functional and molecular mechanisms of myocardium in experimental chronic diabetes (CTC, Pharmacol)

Effect of verapamil on coronary reperfusion induced myocardial injury in canine model (CTC, Pharmacol)

Effect of vitamin B6 deficiency on complement proteins and immunity (Biochem, CTC)

Modulation of cell mediated immune response by complement C3 and C3b in leprosy (Biochem, CTC).

Humoral immune response in pulmonary tuberculosis (PT) (Biochem, CTC)

Studies pertaining to CR1 receptors in immune complex diseases: acquired deficiency of C3b receptor (CRI) in acute glomerulo nephritis (Biochem, CTC)

Radiolabelled antimyosin monoclonal antibodies in the detection of acute experimental myocardial infarction: (CTC, Nuc. Med, Pharmacol)

Role of dobutamine in the evaluation of patients with coronary artery disease (C.T.C.Nuc. Med)

Detection of acute rheumatic carditis by In-111 antimyosin monoclonal antibodies and Gallium-67:(CTC, Nuc.Med)

Identification of coronary artery disease in presence of left bundle branch block by exercise radionuclide ventriculography: (CTC, Nuc.Med)

New Research

1. RFLP studies for genetic susceptibility for RF-RHD.
2. Disappearance of mitral regurgitation following acute rheumatic fever.
3. Immunohistochemical studies in various surgical specimen from patients of RHD.
4. Nuclear magnetic resonance imaging in restrictive heart disease.
5. Differential diagnosis of rheumatic fever and bacterial endocarditis in preexisting RHD.
6. Characterisation of anti-caudate nucleus antibodies in patients with rheumatic chorea.
7. NMR studies in patients with rheumatic chorea.
8. LV systolic & diastolic function in endstage renal disease before and after hemodialysis.
9. Cardiac arrhythmias on ambulatory monitoring during and after hemodialysis in patients with end-stage renal disease.
10. Effect of captopril on hemodynamics in cor pulmonale: Noninvasive assessment by Echo-Doppler & radionuclide ventriculography.

11. Evaluation of restrictive heart disease by echocardiography, cardiac CT, NMR, cardiac catheterization and angiography & endomyocardial biopsy: a comparative assessment of various diagnosis techniques.
12. Hemodynamic & angiographic evaluation of hepatic venous outflow obstruction before and after therapeutic intervention: (i) Surgery or (ii) balloon angioplasty,
13. ICMR study on prevalence and risk factor profile of coronary heart disease in selected Indian population samples.
14. ICMR project on a Indo-UK collaborative study of the comparative prevalence and risk factor profile of coronary heart disease in Indians in India and UK.
15. Evaluation of the validity and reproducibility of a congestive heart failure score as an evaluative instrument for measuring response to therapy.
16. Evaluation of the validity of the six-minute walk test as a measure of cardiovascular performance in patients of congestive heart failure.
17. A clinical value study for evaluating the safety of management decision making based on clinical assessment and echocardiography versus cardiac catheterization for evaluating patients of valvular heart disease for open heart surgery.
18. Passive smoking as a coronary risk factor in Indian women.
19. Effect of PTCA in silent ischemia in single and multivessel disease.
20. A comparison of in vivo and in vitro balloon size during PTCA.

21. Electrophysiologic effects of metoprolol and verapamil in patients with cardiac conduction defects.
22. Electrophysiological including monophasic potential recordings in hypothyroid patients.
23. Electrophysiological studies in Wolff-Parkinson-White syndrome to localize the accessory pathway.
24. Immunological, virological and morphological studies in "Nonspecific aortoarteritis".
25. Comparative studies of I.V. dipyridamole, vectorcardiographic and radionuclide ventriculography studies in patients with coronary artery disease.
26. Power spectral analysis of the EKG in patients with coronary artery disease.
27. Evaluation of factors (platelet factor 4, antithrombin III, alpha 2 microglobulin, & alpha 1 anti trypsin) predisposing to arterial thrombosis in patients with acute myocardial infarction.
28. Pulmonary perfusion scans before and after mitral valve balloon dilatation.
29. Radionuclide assessment of right and left ventricular function before and after mitral valve balloon dilatation.
30. First pass studies in the serial follow up of patients undergoing mitral valve balloon dilatation.
31. Echo Doppler studies of patients undergoing Fontan operation.
32. Echo Doppler profile of patients with CHD below the age of 1 yr a study of consecutive 500 cases.

33. Risk prognostication of cardiac patients undergoing non-cardiac surgery.
34. Study of depressive illness after myocardial infarction
35. Studies on the effects of ecosonoids and their inhibitors on cardiac function and metabolism in experimental myocardial infarction.
36. Post operative pain relief after cardiac surgery.
37. Blood conservation during open heart surgery.
38. Oxygen saturation changes following premedication in paediatric cardiac surgical patients.
39. Acupuncture for post-thoracotomy neuralgia.
40. Distribution, characteristics, dietary influence and status of lipoprotein and lipoprotein receptor vis a vis coronary heart disease.
41. Effect of alcohol on lipids lipoproteins and apoprotein profile in experimental animals and human volunteers.
42. Echocardiographic and radionuclide long term right ventricular function after total correction of tetralogy of Fallot.
43. Clinical and investigative profile of primary pulmonary arterial hypertension.
44. Measurement of normal coronary artery dimension of Indian population, an autopsy study.
45. Long term follow up of patients following closure of ventricular septal defect.
46. Histopathological evaluation of endomyocardial biopsies and its correlation with immune complexes and heart reactive antibodies - A study of myocarditis/dilated cardiomyopathy.

47. Cardiac immune complexes, immunohistochemical characterisation and quantitation of mononuclear cells and evaluation of its role in the diagnosis of lymphocytic myocarditis: an endomyocardial biopsy study.
48. Electron microscopic and immunohistochemical evaluation of early myocardial ischemia - an experimental study.
49. A study of immunologic parameters in infective endocarditis.
50. Role of aortic antigen in induction of experimental aortoarteritis.
51. Comparison of the arteriographic abnormalities in Takayasu's arteritis in children and adults.
52. Takayasu's arteritis in North India - Is it a distinct clinical entity?
53. The incidence and spectrum of adverse reactions to contrast media during angiocardiographic procedures.
54. Evaluation of ventricular function in patients before and after mitral valve balloon dilatation using radionuclide methods.
55. Role of pulmonary perfusion scintigraphy in patients after Fontan operation.
56. Assessment of pulmonary wedge pressure by equilibrium blood pool scintigraphy.
57. Exercise Thallium-201 myocardial perfusion scintigraphy in patients with CAD before and after balloon angioplasty.
58. Microautoradiography in the assessment of acute experimental myocardial infarction using radiolabelled antimyosin antibodies.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr V.Dev received the Dr D.P.Basu young investigator award in the annual conference of CSI & ATCVSI, Nov. 1988.

Dr. U. Kaul: membership of the National Academy of Medical Sciences.

Dr. K.K. Talwar received the Dr Syam Lal Saxena memorial award of the NAMS for 1988 & was appointed editorial consultant to "Cardiovascular World Report" & Indian Heart J.

Dr. S.C.Manchanda gave the Sphere oration of the CSI in Nov.1988.

Dr. H.S.Wasir gave the Dr O.P.Goel Oration of the Meerut branch of IMA for 1988.

Dr. R. Tandon gave the Gen. R.S.Hoon oration of the National Association of the Critical Care Medicine (India) 1988.

Significant Events

Dr Bahl was editorial adviser to Indian Heart J.

Dr U. Kaul was visiting professor at the Royal Melbourne Hospital, Victoria, Australia May 1988. Member delegate Indo-USSR cooperative programme for thrombolytic therapy and use of lasers in cardiovascular diseases (October 1988), participated in a course on "Complex PTCA"organised by Mid America Heart Institute, Kansas City at Lihue, Hawaii (USA) Organised and convened circuit course in Cardiology under the auspices of Asian Pacific Society of Cardiology (Delhi and Srinagar July 1988). Chaired 2 sessions during the Annual CSI - meeting Nov.1988, New Delhi. Elected executive committee member Cardiological Society of India; appointed editorial advisor Coronary heart disease" Indian Heart Journal and Member National PTCA

registry; appointed member of laser users committee of the Centre for advanced technology.

Dr Narula worked as an honorary program officer for Cardiovascular diseases at ICMR; completed Minnesota coding course at the University of Minnesota USA in Nov. 1988.

Dr. M.Rajani has been appointed on the editorial advisory committee of the Indian Heart J.

Dr. I.M.Rao chaired a session on "Congenital Heart Surgery" in 2nd annual Conference of ATCVSI held at Chandigarh Feb.1988.

Dr K.S.Reddy completed his training in Clinical Epidemiology at the McMaster University, Hamilton, Canada and was awarded a M.Sc. in Design, Measurement of Evaluation Clinical Research Methodology. During the period of his training, he served as a member of the Graduate Education Committee of the Deptt. of Clinical Epidemiology and Biostatistics and developed educational programmes for teaching critical appraisal of medical literature for residents of Internal Medicine and Educational Modules for teaching social sciences relevant to health care for trainees in Clinical Epidemiology. These educational packages are currently part of the curriculum of McMaster University. Dr Reddy has been appointed as Associate Editor of the National Medical Journal of India and as Assistant Editor of the Indian Journal of Medical Education. He was the secretary of the Indian delegation to the World Congress of IPPNW in Montreal in June 1988.; presented scientific papers in the National Conference on International Health, Washington, USA, in May 1988 and the Annual Conference of INCLEN (International Clinical Epidemiology Network) at Goa in January 1989; gave a lecture on 'Strategies for Prevention of Rheumatic Fever and Rheumatic Heart Disease - An Indian perspective' at the 'Hamilton Regional Cardiology Rounds' McMaster University, Canada, as Visiting Professor in the 'Symposium on Nuclear Non-proliferation' in the World Congress of the International physicians for prevention of Nuclear War

(IPPNW) at Montreal in June 1988. He served as a tutor in the Ontario regional workshop for teaching critical appraisal to cardiology fellows organized by the McMaster University and gave a lecture on 'Rheumatic Heart Disease in India - Challenges and strategies for control' at Osmania University Alumni Association of North America in Orlando, USA in July 1988.

Dr S.Shrivastava participated in an international workshop on angioplasty, valvuloplasty, cardiac electrophysiology and echocardiography at the Bombay Hospital Medical Research Centre Bombay Dec. 1988.

Dr L.M.Srivastava is a member of the education committee of the International Union of Immunological Societies (IUIS); continued to be a member of the Editorial Board of the "Journal of Recent Advances in Applied Sciences and Journal of Biochemical and Chemical Research India; functioned as a member of the ICMR project review committee; nominated as a member of research degree committee of the Universities of Agra and Meerut and as Delhi representative of the Assoc. of the Clinical Biochemists of India.

Dr. K.K.Talwar gave a lecture on "Utility of endomyocardial biopsy in tropical cardiovascular disease at the West Virginia University , Morgan town, Virginia, USA.

Dr. Tandon was nominated on the scientific advisory group, noncommunicable diseases ICMR ,was faculty invitee for the Academic Committee of AIIMS, appointed inspector for evaluation of D.M. Cardiology by Medical Council of India, chaired scientific sessions in the joint annual conference of CSI & ATCVSI as well as the annual meeting of the CSI (Delhi chapter).

Professor Venugopal and Dr B.Das participated in the I World Congress of Pediatric Cardiac Surgery held at Bregamo, Italy in June 1988.

Dr. H.S.Wasir was chairman for the session on "Balloon angioplasty" during the annual CSI Delhi

branch meeting, April 1988; appointed as examiner for the National Board Examination in Cardiology; member of the teaching faculty of Bharat Heavy Electricals -Human Resources Dev. Instt; inspector for DM Cardiology courses evaluation by the Medical Council of India; member of INDO-USSR Cooperation Programme in Cardiology and Cardiac Surgery; referee for research schemes of the Council of Scientific and Industrial Research, Organizing Secretary for the CME on Cardiac Arrhythmias - AIIMS, in Oct, 1988; Chairman-session on exercise testing after acute myocardial infarction - 40th Joint annual Conference of CSI Nov.1988, New Delhi. as member of the Working Group on Medical Health Research and Development - for the 8th Five Year Plan 1990-95, Planning Commission, Chairman for the session on "Echocardiography and DSA" in the Medical Update-Maulana Azad Medical College, New Delhi Dec., 1988. Appointed member of working Group on Containment of Non-communicable Diseases -8th Five Year Plan 1990-95, Planning Commission ;Chairman for the Internatinal symposium on SR 240 ISOPTIN- N.Delhi, January 1989.

Visiting Scientists

A team of 4 Russian Scientists visited the department of CTVS in October, 1988 under Indo-USSR scientific collaboration, attended operations and gave talks on their experience with congenital, valvar and coronary surgery. Dr G. Crupi, Paediatric Cardiac Surgeon from Bregamo Italy visited the department in August, 88 and gave a talk. Dr M.J. Antumes visited the department from South Africa. Cape, town and gave a talk on "experience with mitral valve repair". Dr Roger Mee Paediatric Cardiac Surgeon from Royal Children Hospital Melbourne, gave two talks, "Cardiac surgery in neonates" and "Surgery for transposition of great arteries."

HOSPITAL SERVICES

Anaesthesia

Four main and one septic theatre is used for cardiac and other surgical procedures.

i) Anaesthesia for open heart surgery	1078
ii) Anaesthesia for closed heart surgery	754
iii) Anaesthesia for other surgical procedures including emergency surgery	58

Biochemistry lab

The biochemistry laboratory continued to have collaboration with WHO-collaborating Lipid reference centre, Prague, Czechoslovakia for the lipid quality control programmes.

The following specialized biochemical tests were performed:

<u>Parameters</u>	<u>No.of investigations</u>
<u>1.Lipid profile</u>	
Total cholesterol	2053
Triglyceride	2095
LDL-cholesterol	2053
HDL-cholesterol	2053
VLDL-cholesterol	2053
	<hr/> 10307 <hr/>
<u>2.Lipoprotein electrophoresis pattern</u>	500
<u>3. Immunological parameters</u>	
ASLO	987
CRP	987
<u>4. Urinary metanephrine</u>	80
<u>5, Serum enzymes</u>	
CPK (CK)	1898

CK-MB isoenzyme
LDH total

144
1809

Total Number:

16,712

Cardiology

Outpatients

Old cases 45,036

New cases 11,718

Coronary clinic 2598

Pacemaker and arrhythmia clinic 715

Hypertension clinic 1521

Diet clinic 748

Pediatric card.clinic-
New cases 1840

General Ward (Inpatients) 2431

Pacemakers implanted 118

Coronary artery angioplasty 86

Valvuloplasty

Coarctation dilation 5

Balloon atrial septostomy 13

Pulmonary 14

Mitral 12

Aortic 16

Investigations

Electrocardiogram (CN Centre, Indoor, OPD)	53030
Vectorcardiogram	101
Stress test	1650
Ambulatory ECG monitoring(Holter)	747
Echocardiogram	5775
Cardiac catheterization & angiography	1431
Electrophysiological studies	63
Endomyocardial biopsy	120

Cardiothoracic Vascular Surgery

The C.T.V.S. clinic is held three days a week. In addition each of a special valve clinic and coronary clinic are held once a week. A 'Chest Clinic' is held once every week.

Pulmonary physiotherapist under CTVS runs a pulmonary physiotherapy clinic thrice a week and provides physiotherapy to inpatients of the whole hospital.

Total admission : 1575

Operations performed:

Open Heart Operation	1078
Coronary bypass	228
Valve replacement, CHD & others	850
Closed heart operations	

Thoracic & Lung operation	812
Vascular Operation	
Total operations performed	1890

Blood bank :

Issues

Total no of blood & plasma`	11395
No of blood units	9194
No. of units given to AIIMS	102
No of units to other hospitals	48
No of units to Red Cross	2372

Donations:

Replacement donors	7011
Voluntary donors(Red Cross)	1869
Voluntary donors (dept)	116
Autologus donations	38
Total	9034

Tests performed

i) Blood grouping	34513
ii) Cross matching	13017
iii) Coomb's test	771
iv) AIDS Screening (Oct 88)	1783
v) Australia antigen	10121

Total no of Camps

- 64

O.P.D. laboratory services of the C.N.Centre

Total no. of patients for blood collection - 8335

Biochemistry Lab

No. of investigations

Blood sugar	7917
Blood urea	5445
S.cholesterol	2921
S.Uric Acid	2590
S.creatinine	2780
Serum protein	44
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	21797
	<hr/>

Clinical haematology lab

Hb.	5000
TLC	2613
DLC	1928
ESR	2682
PEV	2700
Special	183
Prothrombin time	3121

18227

Grand total of Investigations :

40,024

During the year under review the apoproteins have been standardized in the laboratory and are ready for introduction for patient care.

Nuclear cardiology

Exercise ventriculography	536
Resting ventriculography	701

Thallium-201 scintigraphy	6
Tc-99m pyrophosphate myocardial scintigraphy	118
First Pass studies	18

Pathology Lab

Electron microscopy -	50	EMB and Autopsy hearts
Immunofluorescence (Antiheart antibodies)	120	
Immunohistochemistry:		
Excised valves	28	
Excised atrial appendage	43	
EMB	58	
Subcutaneous nodule	2	

Radiodiagnosis:

S.No.	Investigation(Angiographic procedures)	Number of cases done
1.	Coronary	454
2.	Rheumatic heart diseases	292
3.	Congenital heart disease	548
4.	Others	31
5.	Pressure study	41
6.	Biopsy	62
7.	Angioplasty (PTCA)	86
8.	Valvoplasty	47
9.	D.S.A.Cardiology & CTVS	188
10.	Plain Cine	22010
11.	Fluoroscopy	960
12.	Plain X-rays for Cardiology &CTVS	11098
13.	Portable X-rays	3096

Community Services & Education

Dr Manchanda participated in 12 teaching programmes of "Medical Rescue and resuscitation for citizens" organised by National Association of Critical Care India; gave 2 talks on A.I.R. and participated in one health programme of DELHI, Doordarshan; gave a talk on "Avoid heart attack" at the Rotary Club Delhi Midtown, Sept. 1988.

Dr Reddy gave a lecture on "Medical consequences of active and passive tobacco consumption" at the National Meeting of Anti-Tobacco Activists organised by the Voluntary Health Association of India at New Delhi in November 1988 and is one of the principal organizers of HOT (Health or Tobacco Group AIIMS) and ACTION (Action to combat Tobacco - Indian Organizational Network) which aim at health education and public campaigning to counter the menace of tobacco related diseases.

Dr Talwar spoke on "Latest development in the treatment of heart diseases in India" in the AIR Science today program.

Dr Tandon gave two talks on AIR in Hindi

Dr Wasir: "Diabetes and the heart"- Lecture for the Sovenier of the Diabetes Self Care Foundation of India ; Common heart problems - TV programme - in Hindi; Treatment of high blood pressure without drugs- Public address in the conference on self heart care - organised by the Heart Care Foundation of India - Asiad Village Auditorium, New Delhi. Guest lecture on - Role of stress on Cardiovascular system and its management"- Staff Training College Syndicate Bank, New Delhi. Participated in the "Diabetic Awareness Symposium" diabetes and Cardiovascular system" "Non drug treatment of high blood pressure - The Hindustan Times pp32,6.11.1988: "Chest Pain- its understanding and Management"- article published in the Hindustan Times, New Delhi 20.22.1988; "Is God Deaf"- Letter to the Editor The Hindustan Times on the hazzards of noise pollution"; Guest lecture on "Heart to Heart" -

delivered to the top Executive Club - Institute of Marketing Management New Delhi. Address to the members of Rotary Club - Delhi South on "Healing power of words" and Causes and prevention of heart disease - AIR broadcast.

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Chapters in Books

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Bahl V.K., Sunder S.: Acute myocardial infarction. ECG-the diagnostic hallmark.p

Bhatia ML: Role of nuclear medicine in non invasive cardiology. p 11-14.

Kaul U: Exercise radionuclide ventriculographic studies in coronary artery disease after revascularization procedures. AIIMS experience p.68-69.

Manchanda SC: Magnetic resonance imaging of the heart. p 139-141.

Rajani M. & Sharma S: Role of digital subtraction angiography in the evaluation of coronary heart disease. p.126-129.

Shrivastava S: Complimentary role of echo-cardiography in the evaluation of left to right shunts and valvular heart disease 122-125.

Srivastava LM: Biochemical marker in acute myocardial infarction p.32-33.

Talwar K K: Right ventricular dysfunction p.73-75.

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Collaborative publications	35
Papers presented in scientific meetings	89
Papers accepted for publication	24

Chapter 6.17

CENTRE FOR COMMUNITY MEDICINE

FACULTY

Professor and Head	L.M. Nath
Professor	P. Bali
Additional Professors	S.K. Kapoor J.S. Gill V.P. Reddaiah
Associate Professor	J. Lobo
Assistant Professors	S.M. Bharel C.S. Pandav R. Gupta S. Chowdhury B. Singh

EDUCATION

Continuing Medical Education

Dr. Bali, was invited to deliver a guest lecture on "Sexual dysfunction" at the annual conference of Gujrat State Chapter of IMA; participated in a panel discussion on Medical Education at the National Conference on Primary Health Care organized by the National Institute of Primary Health Care; gave lectures on "Dimensions of family discord and their solutions" at the Institute of Criminology and Forensic Sciences, Ministry of Home Affairs,; Health care development of tribal women" at the Tribal and Harijan Research cum Training Institute, Bhubneshwar, Orissa. "Crime on young females : health perspective" at a workshop organized by the Foundation for Integrated Human Development at New Delhi.

Dr. Reddaiah participated in a review of "Pilot test on acute respiratory infection KAP study" at UNICEF, New Delhi.

Dr. R. Gupta, attended DGHS-WHO workshop on "Clinical management of AIDS" at AIIMS.

A national workshop on "Teaching curriculum for epidemiology for undergraduate medical students" was organised at Centre for Community Medicine. Teaching faculty and experts from several leading medical institutions of India participated.

A workshop on the training of primary health centre and subcentre level staff was organized for district level officers from U.P. and Bihar. Faculty of the local Health and Family Welfare Training Centres were also involved.

Five foreign medical students (USA, UK, Canada) took an elective posting of 2-4 weeks for rural posting at Ballabgarh. A French youth delegation visited the NSS Unit under the cultural exchange programme.

A workshop on IEC project of Ministry of Health and Family Welfare was held.

Sixty five NSS volunteers of Delhi University were given orientation training in basic community health by the NSS Unit. "Swasthya Prerna", the health bulletin of the NSS Unit continues its publication. Sixteen volunteers from community were also trained.

In-service training of paramedical personnel continues at the rural areas of Ballabgarh.

RESEARCH

Research Completed

Survey of the nutritional status of pre-school children in the rural area of Ballabgarh

One thousand pre-school children selected from villages which have been stratified according to population were studied. The socio-economic status using the Uday Parikh scale were determined. The nutritional status and dietary survey (using the 24 hour recall method) of all the children has been determined.

Development and evaluation of a computer based data management system for a PHC

The present information system of a PHC has been analysed. A computer based information system has been developed and has been used for a better management information system. The programme has been implemented and is being used not only to generate reports but is also making actual work programmes for the peripheral workers, giving them a monthly list of tasks to be performed in each household in their jurisdiction.

Management of acute respiratory infections (ARI) in underfives. (ICMR project)

Underfives were followed through domiciliary visits. The attack rate was found to be highest in January and lowest in June. Moderate and severe cases constituted about 14% of all cases. The study has demonstrated that a well managed standard ARI case management approach can substantially reduce ARI related morbidity and mortality.

Morbidity among elderly population of an urban area

Seventy one percent were found to be suffering from one or more disease. Common conditions included refractory errors, cataract, anaemia, deafness, hypertension, chronic bronchitis, skin diseases, etc. The elderly often did not receive adequate medical care.

Clinico-epidemiological study of automobile accidents

Forty two percent belonged to age group 21-30

years. Most accidents occurred between 4 to 6 p.m. and between 8 and 10 a.m. Friday was the worst day and June the worst month. Two wheeler riders and pedestrians were most at risk.

Feasibility study of primary and secondary prophylaxis of Rheumatic Fever/Rheumatic Heart Disease through existing health infrastructure (ICMR multicentre study, Com. Med., CTC)

Research Continuing

Information education and communication (IEC) training scheme (Ministry of Health Multicentre Project)

The Centre for Community Medicine is the apex institution for this project, and CRHS project. Ballabgarh is acting as the central training institute for Bihar. A workshop was organized in Ballabgarh for the district training teams of U.P. and Bihar. The training of relevant personnel has been completed and a new recording system instituted. The C.C.M. team has made various field visits to Ranchi, Giridih and Hazaribagh districts of Bihar. The health education material has been finalized.

Epidemiological study of skin diseases in school children of village Chhainsa

Six hundred children residing in Chhainsa and attending the school were examined every month in order to determine the incidence of skin diseases in them. The data is being analysed.

An operational study on the management of acute respiratory infection (Multi-centric ICMR Project)

Paramedics trained to recognise by symptomatology acute respiratory illness in children under five years of age, had also been providing antibiotics to the children with moderate and severe respiratory infections. Incidence rate of ARI and the effect on morbidity and mortality is under calculation.

The effect of regular intervention against ascariasis and giardiasis on growth in children aged 1 to 5 years in a rural area

A double blind study where the sample children have been divided into four groups. Each group is distributed at two monthly intervals - mebendazole (200 mg), tinidazole (50mg/kg), mebendazole and tinidazole and placebo respectively. Periodic growth assessment was done.

Field supplementation trial in pregnant women with 60, 120, and 180mg of iron combined with 500 ugm of folic acid (Multicentric ICMR funded)

The study was conducted in the rural area of Ballabgarh to assess the efficacy of various dosages of iron supplementation on the hemoglobin levels of pregnant women. The frequency and nature of side effects was also studied to find out the most acceptable dosages of iron supplementation. Results are being analysed.

To develop criteria for use of antibiotics in acute respiratory illness (Multicentric international collaborative study)

Children below the age of 3 years with cough and no history of antibiotic intake in the preceding 48 hours were selected. Clinical examination and an X-ray of the chest was done. (Treatment may be changed after the X-ray is reviewed, but is not mentioned in the proforma).

Mental disorders in rural school children (Com. Med., Psychiat)

Prevalence of common neurological disorders in a rural community (Com.Med., NSC, NIH. Bethesda USA)

New Research

1. Incidence of diarrhoeal diseases in under-five children.

2. Prevalence of carcinoma breast and other breast diseases in women in a rural community.
3. Knowledge, attitude and practice (KAP) of trained and untrained rural "dais" regarding maternal and child care.
4. Epidemiology of chronic diseases and compliance of patients with their therapeutic regimens.

AWARDS AND EVENTS

Significant Events

Prof. Nath was appointed the Chairman of the Health sub-committee of the Scientific Advisory Committee to the Prime Minister.

Prof. Bali was renominated as the Chairperson and representative of Asia region at the executive committee meeting of the International Association for Adolescent Health at San Francisco; was nominated as executive committee member of the Family Planning Association of India (FPAI), as well as consultant to its Sex Education and Counseling Research and Training Unit; President of the Association for the Mentally Retarded Children; member of the editorial boards of Journal of International Medical Sciences Academy and of Parivar Kalyan (of FPAI); chaired the symposium on "Family welfare and society" at the Afro Asian Oceania Conference of Anatomists, and presented a paper on "Ageing in Contemporary Society," in New Delhi; inaugurated the workshop on "Community health care" at Udaipur organized by the National Federation of Fisherman Cooperatives; was Chairperson for Asia Pacific Region at the executive committee meeting of International Association of Adolescent Health at San Francisco. She presented a paper on "Chronic diseases and disability among adolescents"; invited to deliver a lecture on "Man's health in contemporary society" at the Indo-German seminar on "Individual and society" organized by Max Muller Bhawan, New Delhi.

Mr. Bharel received the fellowship of the Indian Association of Preventive and Social Medicine (IAPSM).

Dr. Pandav was renominated as the regional coordinator of International Council for Control of Iodine Deficiency Disorders (ICCIDD) for South-east Asia region for a period of three years; was medical consultant to the film "THE BARREN HARVEST" which won a National Special Jury Award at the 35th National Film Festival, 1988; attended the meeting on "Iodine and brain co-sponsored by Fogarty International Center, NIH and International Council for the Control of Iodine Deficiency Disorders, held at NIH, Bethesda, Maryland U.S.A. March 1988; attended the annual board meeting of International Council for Control of Iodine Deficiency Disorders, held at Virginia, USA, March, 1988; was Joint Secretary of International Symposium on "Environment, Genetics and Thyroid Disorders", organized by Thyroid Association (India) March, 1989, at A.I.I.M.S., was elected as a Joint Secretary, Thyroid Association (India); participated in a workshop held in New York to prepare a series of manuals for use in campaign against Iodine Deficiency disorders in September-October 1988; was a resource person at the National Workshop on "National Goitre Control Programme" organized by the Directorate of Health Services, Ministry of Health; participated as a resource person at the Madhya Pradesh state level workshop on "Iodine Deficiency Disorders Control Programme" held at Jabalpur August 1988 in which he spoke on "Myths and facts about iodine deficiency disorders"; key note speaker at the Iodine Deficiency Disorders Control workshop organized by the Department of Social and Preventive Medicine, Visakhapatnam presented a paper on "Role of health professionals in control of tobacco use" in the "National meeting of tobacco activists" November 1988 organized by Voluntary Health Association of India; attended a workshop on "Measurement and assessment in health and nutrition interventions in developing countries" at London School of Hygiene and Tropical Medicine.

Dr. Nath visited NIH in Bethesda as a member of the Indian team on the joint Indo-US Subcommittee in the

field of Reproductive Biology and Fertility Control. He also visited schools of Public Health and similar institutions in U.K., Canada and U.S.A.

Mr. Chowdhury attended Johns Hopkins Summer Programme in Epidemiology. He was also a resource person for UNICEF to discuss KAP survey on STD in India and for WHO in their intercountry workshop on "Health promotion and control of AIDS".

Community Education

Dr. Bir Singh participated in two discussions (World Health Day and Balanced Diet) on All India Radio. He also organized broadcasting of two programmes on CRHS Project, Ballabgarh on All India Radio.

Dr. Bali gave lectures on "Rape : its social and psychological implications" at the Miranda House, Delhi University October, 1988; All India Radio on "Population problems and sex education" May, 1988; gave a talk regularly every 1st Saturday round the year on "Sex education" at Yuv Vani - A.I.R.; "Sexual and marital maladjustment" at the course organised by the Social Welfare Board December, 1988 and January, 1989, New Delhi.

A health exhibition on AIDS was organized by Mr. Chawdhury at AIIMS on World AIDS day.

Hospital and Community Health Services Urban Health Services

Comprehensive health services through mobile van are provided to the residents of Rajiv Gandhi Camp. In addition, weekly mobile services are provided to Puthkalan resettlement colony and Kotla.

1. Medical care provided to slum dwellers at

Rajiv Gandhi Camp	11875
Puthkalan	2459
Kotla	387
Total patients, referred	160

2. Family planning services

Nirodh	5000
Copper T	8
Sterilization	8

3. Immunization

Immunization	Ist dose	2nd dose	3rd dose	Booster	Total
T.T.	100	120		92	312
D.P.T.	216	149	129	36	530
0-1 Yrs					
1-2 OPV	254	182	171	261	868
D.T.	83	25			108
B.C.G.	116				116
Measles	88				88
Vit. A.	525				525
P. Folifer	979				979
Preg. Mothers	88				88
A. Folifer	195				195

4. Health and marriage counselling clinic at the AIIMS OPD.

This is the first clinic of its kind in the country, and receives patients both from the country and abroad.

New patients 3143

Old patients 6291

Investigations
(Semen examination) 4278

Rural Health Services (Ballabgarh)
Hospital Services (Referral Hospital) Ballabgarh

1. Outpatients

The following outpatient departments are run:

- A) General outpatients where all adults are seen.
- B) Child Welfare Centre -where all children are seen.
- C) Ophthalmology outpatients.
- D) ENT on two days of the week.
- E) Dental outpatients.

OPD LOAD

New cases	51,265
Repeaters	119,141
Total	170,406

Clinics

Antenatal clinics - three days of the week.

Tuberculosis clinic - one day of the week.

Nutrition Rehabilitation Clinic - one day of the week.

Infant care 6,458

Toddler care 4,045

Inpatients

1. The number of beds 60
2. (i) Total No. of admissions including hospital births 5,257
(ii) Number of hospital births 1,229
(iii) Bed occupancy rate (Including newborns) 94.4
(Excluding newborns) 77.96
(iv) Average days of stay 3.5 days
3. Distribution of inpatients by speciality:

Speciality	Nos.	%
Medicine	493	9.4
Surgery	160	3.1
Obst. Gynae.	1,916	36.5
Paediatrics	1,140	21.7
Ophthalmology	245	4.7

New borns	1,229	23.1
ENT	74	1.5
Total	5,257	100.0

4. Casualty

Number of patients registered	11,946
Number of medico-legal cases	1,208

5. Diagnostic tests performed

i) Lab investigations	26,783
ii) X-ray	11,690
Screening	175

6. Total number of surgical procedures performed

General surgery	411
Obst. & Gynaecology	199
Family planning	307
Ophthalmology	285
ENT	226

Total	1,428
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Intensive field practice area (IFPA):

Comprises the two primary health centres - Dayalpur & Chhainsa. The area has been equally divided between the 2 PHCs. Each now has a population of approximately 30,000. Outpatients, domiciliary and referral services are being provided. A change was made in the immunization strategy this year. Immunizations were not provided all the year round, except for TT to pregnant women. Intensive immunization campaigns were launched from time to time during period under review.

1. Indices

i) Population	59,173
ii) Birth rate	33.24
iii) Death rate	7.74

iv) Neonatal mortality rate	21.86
v) Infant mortality rate	69.65
vi) Maternal mortality rate	0.0

2. Load of OPD patients at various centres in IFPA

Name of centre	New Cases	Repeat visits	Total
Dayalpur (EHC & PHC)	9719	12,698	22,417
Chandawali (EHC)	635	199	834
Bukharpur (EHC)	567	367	934
Fatehpur Billoch	949	464	1,413
Shahpur Kalan	630	273	903
Chhainsa (PhC & EHC)	9330	11,740	21,070
Garhkhera (EHC)	851	590	1,441
Naryala (EHC)	725	453	1,178
PHC Dayalpur	12500	14,001	26,501
PHC Chhainsa	10906	12,783	23,689
Total	23406	26,784	50,190

Family welfare & maternal child health

i) Total AN cases (newly registered & carried over from last year)	2,371
ii) % of pregnant women receiving AN care	84.85
iii) TT coverage of registered cases (percent)	72.00
iv) Deliveries conducted by staff of hospital	206
v) Deliveries conducted by local dais	1,761
vi) Total postnatal cases (newly registered & carried over from last year)	2,019
vii) Eligible couple protection rate	38.60
viii) Total number of persons who accepted Family planning methods in 1987	610
Tubectomy	280
Vasectomy	16
CC users	215
IUD	36
Oral pills	63

Expanded programme on immunization

Coverage	
BCG	80.96%
OPV (3 doses)	97.76%
DPT (3 doses)	83.92%
TT (pregnant women)	65.73%
Measles	77.29%

National programmes

1. Malaria

Collection of blood slides is done by active and passive surveillance.

	Total	Active	Passive	Mass
Number of slides collected	7,720	4,510	2,660	550

Indices

i) Annual blood slide collection rate	130.46/1000 pop.
ii) Annual parasite incidence rate	0.98/1000 pop.
iii) Slide positivity rate	0.75% of the slides collected

II. Tuberculosis

This programme is carried out in the IFPA on the national pattern. The multipurpose workers detect suspected cases of tuberculosis on symptom survey. Sputum examination is done and treatment started on all those who are AFB positive. X-ray chest is done whenever necessary. Broad classification of cases:

i) Cases brought forward from last year	303
ii) New registration during the year	297
iii) Total cases	
- Defaulters	217
- Treatment closed	132
- death	3
v) Referred to other agencies/hospitals	6
Total cases closed	358
vi) Total cases in hand on Jan. 1, 1988	242

vii) Sputum & X-ray examination	
Sputum examination new & old cases	1,749
Sputum positive	89
Sputum negative & X-ray positive (new & old cases)	179
Others	29

Community Services and Education

i) Health education programme -	
Exhibitions held	13
Film shows	6
Seminars	5
ii) Health talks at -	
Child welfare centre	1,768
Antenatal clinic	467
TB clinic	164
Ophthalmology OPD	229
General OPD	369
Health talks by B.Sc. Nursing students	40
iii) Mass meetings	50
iv) Posters & pamphlets exhibited	177
v) Nutrition clinics held	48
vi) Flash cards sets used	40
vii) Nutrition demonstrations	19
viii) Role play	7
ix) Slogan writing on walls	119
xi) Demonstration by B.Sc. Nursing students	21
xii) Diarrhoea & ORS - demonstration	216
xiii) Poster competition	5
xiv) Nutritional beneficiaries	134
xv) Songs and qawals	16
xvi) Camps	
- Participants	275
- Health awakening camps	5
- Orientational camps	1

Camps

1) An Eye camp was held in the 4th week of November which lasted till mid of December 1988. Total 231 operations were conducted, among these 171 were

intra-ocular. This camp was organised by the Ballabgarh Welfare Association. Glasses were also provided to 72 poor patients.

2) Every month Immunization camps for under-three children were held in IFPA of CRHS project.

PUBLICATIONS

1. Kapil U, Bali P: Study of high risk in underfive children. Indian Pediatr. 1988; 25: 1180-1183.
2. Murthy GVS, Reddaiah VP, Kapoor SK: Fertility trends and pregnancy wastage in a rural area of Haryana. Ind. Jour. Community Med. 1989; 14:11-14.
3. Murthy GVS, Kumar S, Goswami A: Health Advertising. Health for the Millions. 1989; 15:20-22.
4. Reddaiah VP, Kapoor SK: Acute respiratory infections in rural underfives. Ind. Jour. Pediatr. 1988; 55:424-426.
5. Kumar S, Reddaiah VP: Lactational amenorrhoea in urban poor women and its implications for use of contraception. Ind. Pediatr. 1988; 25: 987-992.

Collaborative publications

2

Chapter in Books

Bali P, "Crime against women : health perspective" in Violence Against Women, pub.: Integrated Human Development Services Foundation, New Delhi, 1988.

Papers presented at scientific meetings

16

Papers accepted for publication

4

Chapter 6.18

DENTAL SURGERY

FACULTY

Professor and Head	S.S. Sidhu
Additional Professor	H. Parkash
Asstt. Professors	N. Shah
	D.P. Kharbanda

EDUCATION

Continuing Medical Education

Dr. S.S. Sidhu participated in a public symposium on 'Oral health-preventive, promotive & curative management' held at Sagar March, 89. He was an invited speaker at a refresher programme for the IAS officers conducted by the National Institute of Health & Family Welfare, New Delhi.

Dr. H. Parkash conducted a course on 'Ceramo-metal restoration for anterior teeth' in collaboration with Dental Wing, MAMC for the benefit of general practitioners and postgraduates.

Dr. N. Shah underwent one day course of training in "Endodontic automated root-canal finder system" organized by Indian Endodontic Society Oct., 1988. She was on teaching faculty for continuing education course in Endodontics organized by Academy of Dentistry International in collaboration with Indian Endodontic Society at Sir Ganga Ram Hospital, New Delhi, July, 88 and the other at MAMC, New Delhi Dec., 88.

Dr. O.P. Kharbanda participated in a symposium on "Treatment strategies for Nineties during International Dental Conference at Colombo, Srilanka January, 1989.

RESEARCH

Research Completed

Immunological and histopathological studies on oral sub-mucous fibrosis(OSMF) and it's comparison with progressive systemic sclerosis (PSS) and morphea.(Dent. Surg., Medicine, Path.)

Research Continuing

Unoperated adult clefts

The study on the effects of early and late surgical repair of cleft palate on growth and development of the maxillary arch and speech development is in progress. It has been found that an orthodontic obturator plays a very important role in restoring speech without hampering the growth of the maxillary segments in cases where surgical repair is delayed. The child must use the obturator during the period he is waiting for surgical repair. The obturator has to be changed at intervals.

A Study of malocclusion and associated factors among Delhi children.

A survey on 2973 school going children of Delhi in the age group of 5 to 14 years has been conducted. A total of 5000 children are planned to be covered. The recordings are being made for dental caries DMF/dmf index, treatment needs and patterns of malocclusion/normal occlusion. The attrition of deciduous teeth and primate spaces are also being recorded.

Craniofacial and dental profile of Indo-Aryans and Aryo-Dravidians

The aim of the study is the establishment of cephalometric norms of the above ethnic groups. These norms may be used for treatment planning of malocclusion of teeth and jaws. It is also planned to computerize the data rather than work with conventional methods. A Digitizer has been installed. At present we are in the process of development of the soft ware programme.

Dental and oral characteristics of adivasi children of Mandu

A survey was undertaken of school going children of 6 to 13 years. A total of 1086 children of both sexes were examined. The children belonged to Bhil & Bhilara ethnic groups of Dhar distt. of Madhya Pradesh. The detailed oral examination included DMF/dmf index for caries, dental treatment needs and occlusion/malocclusion pattern. For this purpose two WHO proformas were used. The recorded data has been compiled and sent to WHO Geneva for analysis of proforma I and II. The pattern of attrition and primate spaces were recorded on a separate performam.

Impacted canines, surgical orthodontic approach

Among the patients attending the dental out-patients department, we have recorded 64 impacted canines among 40 patients of varying age groups. Out of these 7 cases are being treated with combined surgical orthodontic approach.

Restoration of orbital defects following cancer surgery (Dent. Surg, otorhino, RPC)

New Research

1. Restoration of hypoplastic mandible following TMJ ankylosis with alloplastic onlay graft.

2. Calcium hydroxide method of treating large periapical lesions.
3. The management of pulpo-periodontally involved teeth.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. S.S. Sidhu delivered M N Sen Oration at the 43rd Indian Dental Conference at Pune, Dec. 1988.

Significant Events

Dr. S.S. Sidhu was member of Academic Committee of AIIMS as a faculty invitee. He was nominated on the Board of Consultants and Referees of the Journal of Indian Society for Dental Research. He was member of CPDC 21 Committee of the Bureau of Indian Standards (ISI). He acted as expert to Coal India Ltd. and member of PRC of ICMR. He attended 34th meeting of the Central Committee of Food Standards, New Delhi Sept. 88. He was an invited speaker at the First National Congress on Cleft Palate, Cleft Lip and other Oro-facial Anomalies, Madras, Sept. 88.; at the 2nd National Conference on Biomaterials and Artificial Organs, Delhi, April, 88.; presided over the 22nd Indian Orthodontic Conference, Surajkund Oct., 88.; nominated on the Working Group on Medical Education, Training and Manpower Planning of the Planning Commission for the 8th Five Year Plan.; nominated to the Advisory Council of the Indian Society for Dental Research.; and on the Sub-committee for Orthodontic Education in India at undergraduate and postgraduate level.

Dr. H. Parkash chaired two scientific sessions at the 18th Delhi Dental Conference and 16th Indian Prosthodontic Conference, Bombay. He acted as a Judge and Moderator for the essay competition conducted by the International College of Dentists India Section.;

has been nominated as a member of Faculty of Dental Sciences, Guru Nanak Dev University.; awarded a memento by the 16th Indian Prosthodontic Society and Delhi Dental Association for conducting the pre conference courses.; He acted as a technical expert on the Selection Committee meetings of the University College of Medical Sciences, New Delhi and Rajasthan Public Service Commission, Ajmer.

Dr. N. Shah was appointed as Judge for best scientific papers at the Annual Dental Conference of Delhi State Branch of Indian Dental Association. She was made a member of Academy of Dentistry International India Section. She also became a member of Federation Dentaire International.

Dr. O.P. Kharbanda acted as convener of scientific sessions of Indian Orthodontic Conference, Suraj-Kung Oct., 88. and was made Section Editor, Panel for Reviews and Abstracts of the Journal of Indian Orthodontic Society.

Visiting Scientists

Dr. T. Samraj, Professor of Oral & Maxillofacial Surgery and Deputy Director CMC Hospital, Vellore talked to the faculty and residents on need for changes in postgraduate orthodontic education in India.

Dr. H.S. Coonar, Consultant Oral & Maxillofacial Surgery, Eastman Dental Institute, London talked on diagnosis and suitability of cases for orthognathic surgery.

HOSPITAL SERVICES

The department runs daily general OPD in the morning and eight speciality clinic inthe afternoon. It provides emergency and Medico Legal services round the clock. The number of surgical procedures and patients attendance is as follows:

Clinics

1. Trigeminal neuralgia clinic
2. Orthodontics clinic
3. Cleft palate cum genetic counselling clinic
4. Maxillofacial prosthesis clinic
5. Head & neck (Dental) cancer clinic
6. Restorative cum endodontics clinic
7. Oral prophylaxis clinic
8. Oral surgery clinic

Specialised Investigations

1. Roentgeno-cephelometrics
2. Head anthropometrics
3. Dermatoglyphics
4. Genetic padigrees
5. Dental cast studies

	<u>New</u> <u>Patients</u>	<u>Old</u> <u>Patients</u>
Attendance general dental OPD	20979	19258

Speciality clinics:

1. Orthodontics clinic	396	3623
2. Trigeminal neuralgia clinic	71	334

3.	Restorative and maxillofacial prosthesis clinic	687	679
4.	Oral prophylaxis clinic	1269	3164
5.	Cleft palate cum genetic counselling clinic	26	255
6.	Head & neck (Dental) cancer clinic	21	10

Specialised Services

Restorations and maxillofacial prosthesis	1227
Oral prophylaxis	4433
Orthodontic appliances	222
Nerve blocks	175

Operative procedures

Minor operations	7474
Major operations	576
Admissions	69

Community Services & Education

The faculty and the residents participated in an exhibition on "Prevention is better than Cure" held by AIIMS Sept., 88

Dr. Sidhu gave four talks in English on AIR National Channel New Delhi in the months of July, Sept., Nov. & Feb. 89 on the following topics: Care of Teeth & Gums, Injury of the teeth & the jaws, Cancer of the Mouth and Crooked Teeth.'

PUBLICATIONS

1. Kharbanda O.P. AIDS, Oral manifestations, methods of prevention in dental office. *Stomatologica India*, 1988; 2:286-289
2. Kharbanda O.P. and Sidhu S.S. Cephalometric studies in India, retrospect and prospect. *J. Ind Orthod. Soc.* 1989; 20: 1-6
3. Parkash H. and Raghvan R. Role of panoramic radiography in diagnosing odontogenic lesions of jaws, *Stomatologica India*, 1988; 2: 42-45
4. Parkash H. Healthy teeth for a healthy body *J. Med. Sci. & Family Planning* . 1988; 3: 36-40
5. Shah N. Non-surgical management of periapical lesions - a prospective study. *Oral Surg.* 1988; 66:365-371
6. Shah N. Role of fluorides in dental health: recent concepts and developments. *Ind. J. Pediatr.* 1988; 55:693-701
7. Shah N. Oral cancers in India: aetiological factors and prevention. *J. Ind. Dent. Assoc.* 1989; 60: 3-6
8. Sidhu S.S. and Deshmukh R. Recessive inheritance of apparent Apert syndrome with polysyndactyly. *Amer.J. Med. Genet.* 1988; 31: 179-180
9. Sidhu S.S. : International tooth numbering system, *Stomatologica India* 1988; 2:62.

Collaborative publications

3

Chapters in Books

1. Rekha D. and Sidhu S.S. Dental and occlusal studies in cleft lip and/or cleft palate anomaly. In : Proceedings of First National Congress on Cleft Palate, Lip and other Oro-facial Anomalies, Ed. Kannappan J.G. Shenbagam Illam, Madras 1988, p. 203-213
2. Sidhu S.S. and Rekha D. Incidence, distribution and etiology of cleft lip, palate and associated syndromes. In: Proceedings of First National Congress on cleft Palate; Lip and other Orofacial Anomalies, Ed. Kannappan, J.G. Shenbagam Illam Madras 1988; pp.1-17

Papers presented at scientific meetings 8

Papers accepted for publication 10

Chapter 6.19

DERMATOLOGY AND VENEREOLOGY

FACULTY

Professor and Head	L.K. Bhutani
Professor	J.S. Pasricha
Additional Professor	R.K. Pandhi
Associate Professor	O.P. Singh

Dr. R.K. Pandhi has been away on lien as Professor and Head, Department of Dermatology, University College of Medical Sciences, Delhi since July 1987.

EDUCATION

Postgraduate

In the clinical case conferences, histopathology slides are being provided (wherever applicable) and discussed. Dermatopathology sessions have been augmented from one hour per week to two hours per week and most histopathology slides of academic value are discussed.

Continuing Medical Education

Dr. O.P. Singh gave a talk on 'Norfloxacin in the treatment of gonoccal infection in men' at the annual conference of Indian Association for the Study of Sexually Transmitted Diseases at Manipal.

Dr. J.S. Pasricha gave talks on Quantification in the diagnosis of cutaneous allergy at the international symposium on Recent Advances in Allergy and Immunology, PGI, Chandigarh; Electrosurgical and chemical

procedures in the treatment of viral diseases, at the Mid-Summer Symposium, IADV&L (Delhi branch); Patch tests in contact dermatitis at the annual conference IADV&L (Delhi branch);; Hair and its problems, at the annual conference IADVL, (U.P. state branch) Jhansi; Curability of skin diseases at the Silver Jubilee Celebration (IMA Karnataka State Branch) Bellary; Hair and its problems, at the Medical College Old Students Association, Bellary, Karnataka; was invited by the undergraduate students of Medical College Jhansi for talks on AIDS, leprosy, pigmentary disorders and acne; participated in the IADVL workshop on surgical procedures in Dermatology, Bombay.

Prof. L.K.Bhutani delivered the key note address at the workshop in leprosy cum CME in Dermatology at the silver Jubilee celebrations of PGIMER, Chandigarh.; spoke on "Epidemiology and transmission of leprosy" at Medical College, Rohtak in the workshop on Medico social aspects of leprosy patients.; gave a guest lecture at the VIIth annual conference of the Indian Association of Dermatologists, Venereologists and Leprologists, UP branch held at Jhansi on "Principles and practice of photobiology".; lecture on "Recent advances in porphyrias" at the Fifth International Dermatology Conference held in Multan, Pakistan.; Chaired a session at the XVII national conference of the Indian Association of Dermatologists, Venereologists and Leprologists held in Bombay.; delivered a talk on 'Photomedicine' in the symposium on 'Light and Life' organised by the Indian Photobiology Society at Calcutta as part of their Silver Jubilee celebrations.

RESEARCH

Research Completed

Norfloxacin in the treatment of gonococcal urethritis in men (Dermatol, Microbiol)

Contact dermatitis caused by Indian perfumes (Dermatol, Microbiol)

Serotyping in genital herpes infection seen at the AIIMS (Dermatol, Microbiol)

Stimulation of antigenic reactive I cells in lepromatous leprosy - role of lymphocyte growth factors (Dermatol. Path)

Assessment of androgenic status of patients with acne vulgaris (Dermatol, Rep. Biol)

Prevalence and incidence of skin diseases in school children (Com. Med., Dermatol)

Research Continuing

Pulse therapy in pemphigus

At present 150 pemphigus patients are being treated with dexamethasone cyclophosphamide pulse therapy, designed by us. Fifty patients have already completed the treatment and are free from the diseases. The maximum follow-up so far has already been more than 5 years. The other patients are also in remission but still on maintenance treatment, confirming that this treatment has the potential of curing this fatal disease.

Immunofluorescence studies in pemphigus sera

Titres of autoantibodies in pemphigus patients treated with dexamethasone-cyclophosphamide pulse therapy have been estimated in 128 sera. The results show that the titres tend to decrease as the patient progresses through the various stages of treatment and become negative as the patient recovers from his illness and the treatment is withdrawn.

Histochemical studies in Lichen planus pigmentosus (LPP)

LPP was described from the Institute in 1974. The condition has largely been accepted as a "macular" variant of lichen planus. In order to confirm precisely

the lichenoid character of the condition, histochemical studies were undertaken on 6 biopsy specimens. Three showed a preponderance of T8 suppressor cells and not CD4 cells as reported in active patients of ruber lichen planus. Macrophages were present in abundance in all the sections.

New Research

1. Pulse therapy in contact dermatitis due to *Parthenium*.
2. Alopecia
3. Evaluation of therapeutic regimes in vitiligo
4. Dermatological problems of cashewnut workers
5. HLA typing in vitiligo

AWARDS AND EVENTS

Distinctions, Awards, Honour

Dr. Bhutani was invited to deliver Dr. Nusrat Sheikh Memorial Lecture at the Fifth International Dermatology Conference held in Multan, Pakistan.; invited to join the editorial board of the newly started (British) "Journal of Dermatologic Treatment". He continues to be on the editorial board of Seminars in Dermatology and International Journal of Leprosy.

Dr. J.S. Pasricha continues to be the Editor of the Indian Journal of Dermatology, Venereology and Leprology.

Significant Events

Professor L.K. Bhutani conducted five one-week courses on "Early detection of leprosy" in Yemen, Arab Republic as a WHO short term consultant with East Mediteranian Regional Office.; was invited to deliver a talk on "Lichen planus pigmentosus - Ashy Dermatosiis in a new garb" in the International Symposium on Dermatology at the American Academy of Dermatology annual meeting held in Washington DC, USA; participated in the combined meeting of the

International Society of Dermatology with the International Society of Dermatopathology, held in Oxford, U.K. and presented a talk on "Immuno-prophylaxis and vaccines in leprosy".; lectures on 'Tropical Dermatology' at Stanford Medical School, U.S.A., Mt. Sinai Hospital, Miami; Emory University Medical School, Atlanta, Ga, and on 'Leprosy' at Toronto University Medical School, Canada and Boston University, U.S.A.

Dr. J.S. Pasricha chaired sessions on (1) Vitiligo, at the International Dermatology Symposium at Jubail, Saudi Arabia, (2) Eczemas at the IMA Academy of Medical Specialities, New Delhi, (3) Leprosy, at the National Conference of IADV&L, Bombay (4) Yaws and its control, at the Annual Conference of IADV&L (U.P. State branch), Jhansi; was a guest speaker on Treatment of pemphigus at the international symposium of Bullous Diseases at Oxford, U.K. and Contact dermatitis at International Dermatology Symposium, Jubail, Saudi Arabia.

HOSPITAL SERVICES

Apart from routine OPD following specialty clinics are being run by the department :-

1. Leprosy
2. Pigmentation and photobiology
3. Allergy
4. Psychosexual clinic

The treatment room in the OPD has been upgraded to minor O.T. for performing dermatologic surgery.

Community Services and Education

Professor L.K. Bhutani gave a talk on 'Cancer of the skin' at the All India Radio and a guest lecture at the Lions International Club's launching of Leprosy Eradication Action Programme (LEAP) in 1989.

PUBLICATIONS

1. Pasricha, J.S., Thanzama, J. and Khan, U.K.: Intermittent high dose dexamethasone-cyclophosphamide therapy for pemphigus. Brit. J. Dermatol, 1988; 119:73-77.
2. Pasricha, J.S., Srinivas, C.R., Krupashankar, D.S., Shenoy, K., Subba Rao, P.V. and Singh, K.K.: Occupational dermatoses among the cashewnut workers in Karnataka. Ind J. Dermatol Venereol Leprol, 1988, 54:15-20.
3. Pasricha, J.S., Dashore, A. and Arya, R.K.: Evaluation of astemizole - a new H-1 blocking antihistamine in urticaria. Ind J Dermatol Venereol Leprol, 1988, 54:27-29.
4. Pasricha, J.S. and Ramam, M.: Trichrrhexis nodosa of the scalp attributable to calcium hydroxide. Ind J. Dermatol Venereol Leprol, 1988, 54:33-35.
5. Pasricha, J.S., Srinivas, C.R., Krupashankar, D.S. and Shenoy, K.: Contact dermatitis due to cashewnut (*Anacardium occidentale*) shell oil, pericarp and kernel. Ind J. Dermatol Venereol Leprol, 1988, 54:36-37.
6. Seetharam, K.A. and Pasricha, J.S.: Ketoconazole in Dermatology. Ind J Dermatol Venereol Leprol, 1988, 54:36-37.
7. Singh, M.K., Seetharam, K.A. and Pasricha, J.S.: Epsinophilic spongiosis in vesiculo-bullous diseases (Reassessment in 93 cases). Ind J Dermatol Venereol Leprol, 1988, 54:196-198.
8. Seetharam, K.A. and Pasricha, J.S.: Nuts as a cause of contact dermatitis of the hands. Ind J Dermatol Venereol Leprol, 1988, 54:241-243.
9. Pasricha, J.S., Seetharam, K.A. and James Thanzama: Piedra in a North Indian woman. Ind J Dermatol Venereol Leprol, 1988, 54:272-273.

10. Pasricha, J.S., Seetharam, K.A. and Dashore, A.: Evaluation of five different regimes for the treatment of Vitiligo. Ind J Dermatol Venereol Leprol, 1989, 55:18-21.
11. Pasricha, J.S. and Jain, G.L.: Scanning electron microscopy of terminal parts of hair in Indian girls. Ind J. Dermatol Venereol Leprol, 1989, 55:44-46.

Chapter in Books

1. Pasricha J.S.: Contact Dermatitis in India. 2nd edition. Department of Science and Technology, 1988.
2. Bhutani L.K.: Colour atlas of dermatology, 1989 (3rd edition)
3. Bhutani L.K.: Colour atlas of sexually transmitted diseases 1989,

Chapter 6.20

ENDOCRINOLOGY, METABOLISM AND DIABETES

FACULTY

Professor and Head	M.M.S. Ahuja
Additional Professors	M.G. Karmarkar N. Kochupillai
Associate Professors	A.C. Ammini

Prof. M.M.S. Ahuja has taken over the charge as Dean, AIIMS, from June 1988.

EDUCATION

Postgraduate

Dr.Kochupillai has been the coordinator for the quantitative biotechnology programme of the M.Sc. Biotechnology course at AIIMS and took the entire block of lectures and practicals for radio-immunoassay part of the M.Sc. Biotechnology programme.

Continuing Medical Education

International symposium on "Environment, Genetics and Thyroid Disorders" was held in March 1989. 170 international participants from 12 countries and 140 from India attended the symposium.

CME programme in Diabetes, under the auspices of the Indo-US Diabetes Association was held in

December 1988. Ten international and 60 national participants attended.

Dr.Kochupillai toured in 5 Tarai districts of U.P. to address group meetings of medical and paramedical personnel concerned with iodine monitoring programme and neonatal screening, and gave plenary lectures on IDD at each of the two divisional level workshops in Meerut and Agra on IDD organised by Directorate of Health Services, Government of U.P. Gave an invited lecture on "Chronic low grade radiation and human health, at the National Workshop on Nuclear Power Projects with specific reference to Kaiga, organised by the Government of Karnataka ; gave a plenary lecture on - Iodine deficiency disorders, and monitoring and evaluation of iodine prophylaxis in UP, at the National Workshop on Iodine deficiency disorders organised by the Ministry of Health, at Bangalore; two lectures on - Nutritional Iodine deficiency and human resource development; and Primary hyperparathyroidism - East and West, at the Indo-US postgraduate course in Endocrinology at PGI, Chandigarh.; Molecular biology of hormone dependent brain development, at the Indo-USSR symposium on Developmental Neurobiology and Neural Transplantation organised by the Indian National Science Academy.; Thyroxine and brain development, at the Postgraduate course in Neurobiology organised by the Department of Science and Technology.

RESEARCH

Research Completed

Induction of puberty with low dose pulsatile LHRH therapy

This study was an attempt to evaluate the utility of low dose pulsatile administration of LHRH for the treatment of hypogonadotrophic hypogonadism. Seven women with hypogonadism were identified. To evaluate the gonadotrophin response to LHRH all women had LHRH test done (25 ug I.V.) before and one week after the LHRH therapy. LHRH therapy was started using 2.5 ug LHRH every 90 minutes and continued for a period from

one to six months. Depending on the estradiol response the dose was increased subsequently to 15 ug/90 minutes. Ovulation was monitored with ultrasonography and serum progesterone during the LHRH therapy. Out of seven women, four started menstruating regularly. All the women showed a significant rise in serum estradiol during LHRH therapy.

Role of thyroxine in Human brain development

A total of 54 human fetal brains from iodine sufficient and iodine deficient mothers, were analysed for T3, T4, rT3, 5-monodeiodinase, 5-monodeiodinase activity, T3 receptor concentration and affinity. These fetuses ranged from 10th to 25th weeks of gestation. 4 mothers had mean urinary iodine excretion (UIE) of 39 ug/gm of creatinine, 22 mothers had UIE of 64 ug/gm of creatinine and remaining 28 had mean UIE of 110 ug/gm of creatinine. They were classified as of moderate, mild and sufficient iodine status. This data, available for the first time in the world literature showed that T3 concentration, T3 receptor concentration and 5 monodeiodinase activity are maintained or increased in mild iodine deficiency in the brain during 15 to 22nd weeks of gestation - a period which coincides with neuroblastogenesis. This may be viewed as adaptive mechanism. However, as iodine deficiency became more severe inspite of 5-MDA activity and T3 receptor concentration being more, it failed to maintain T3 concentration during this period, indicating that as severity of iodine deficiency increases the adaptive mechanism fails. This underscores the immediate need for supply of iodine to severely iodine deficient regions of our country.

Use of Buserelin (LHRHa) in the treatment of precocious puberty (Endocrin, Pediat)

Research Continuing

Screening for late onset congenital adrenal hyperplasia among hirsute women : A pilot study

The study is an attempt to estimate the frequency of late onset congenital adrenal hyperplasia in peri and post pubertal women with hirsutism. During the past one year, 58 north Indian women with hirsutism were identified. 10 healthy women were selected as controls. All the patients underwent X-Ray skull, abdomen and ultrasound of ovaries and adrenals. Basal serum testosterone, LH, FSH, DHEAS and 17-OHP were estimated. ACTH stimulation test following overnight dexamethasone suppression was carried out in all patients estimating DHEAS, 17-OHP and 17-OH pregnanolone. All patients had normal X-ray skull, abdomen and ultrasound of ovaries and adrenals except one patient with adrenocortical carcinoma imaged both by Ultrasound and CT scan. The hormonal profile of these patients revealed an elevated basal testosterone in 19 subjects. In 15 patients basal LH was elevated with LH/FSH ratio more than 3 in 30 patients. Study of 50 more patients with hirsutism is necessary to draw definitive conclusions.

Serum concentration of testosterone, free testosterone and sex hormone binding globulin in hirsute women

The study has been planned to find out the effect of low fat diet on the serum testosterone, free testosterone and SHBG in hirsutism. So far 40 patients (age 17 to 40 yrs) with hirsutism have been taken for the study. Three fasting blood samples at weekly intervals were collected. Dietary intake was evaluated and all were kept on low fat diet with 15-20 gm fat/day, for two months. The fasting blood samples were collected at the end of first and second months. Serum testosterone, free testosterone and SHBG will be estimated and correlated with the fat intake.

Collaborative study on non-insulin dependent diabetes mellitus and related morbidity events

Clinical as well as biochemical data on 4643 NIDDM cases (NEW DELHI 507; LUCKNOW 569; MADRAS 555; TRIVANDRUM 431; UDAIPUR 569; PUNE 579; CUTTACK 499; CALCUTTA 502; JABALPUR 432) has been analysed at ICMR by the end of 1988. A brief report on these cases during the first year of follow up was prepared by the coordinating research staff from the department in liaison with ICMR, on the following aspects : a comparison between occurrence rates of vascular disease in diabetics at the time of entry and, at the end of first year's follow-up; and effect of three risk variables - duration of the disease, associated systolic hypertension and glycemic control.

External quality assessment programme (Niddm/ICMR)

Since September, 1984 external quality control (EQC) specimens, measured and lyophilised at the coordinating centre were sent to each of nine NIDDM centres every week for biochemical reporting on blood glucose, glycosylated hemoglobin, serum cholesterol, serum triglycerides, serum HDL cholesterol, serum creatinine and, urinary glucose and proteins. After initial standardisation and regular satisfactory reporting on the EQC samples from all centres, since February, 1986 EQC lots are being sent once in a fortnight to all centres. The allowable levels of error and Tonk's scoring are used in quantifying the biochemical quality control reporting. This score was 69.8%, in pooled data for all biochemical investigations reported from collaborative centres in the year 1988, as submitted to ICMR at the end of the year 1988. Uniform methodology and comparable reporting were thus ensured at all collaborating centres, throughout the study period.

Monitoring and evaluation of iodine prophylaxis in U.P. - (DST)

Analysis of over 1700 randomly collected salt samples from retail outlets and households of 50 districts in U.P. showed less than 3 per cent of samples without iodine. Majority of the districts surveyed showed 'good' or 'satisfactory' levels of salt iodation. Over 2000 urine samples collected randomly from 16 districts showed that a vast majority of subjects excrete more than 50 microgram iodine per gram of creatinine in urine. Preliminary results of neonatal screening for hypothyroidism in Terai districts, 6 months to one year after salt iodation show decline in incidence from 99 per thousand to 13 (urban) and 18 (rural) per thousand births at 6 months to one year post-iodation.

Iodine deficiency disorders and its prophylaxis in the tribal belts of Andhra Pradesh and Kerala

Studies so far in this ongoing project show a disparity between urinary iodine excretion pattern and goitre prevalence in the tribal belts. These results were followed up by urinary thiocyanate excretion pattern which indicate that significant number of tribal children studied have high levels of thiocyanate excretion. The possible sources of this excess thiocyanate are being studied.

Matched reagents for assay of reproductive hormones (ICMR-DST Project)

Under this project specific and sensitive antisera were raised against testosterone, prolactin and estradiol. The testosterone antiserum has been made available to workers in different parts of the country. The prolactin antiserum is being adapted to EIA mode, and more reagents are being developed for progesterone, cortisol and LH assay.

Recombinant DNA Technology based insulin biosynthesis :
DST Project in collaboration with the biotechnology
centre, JNU

Our laboratory has the responsibility of developing specific and sensitive immunochemical reagents to screen the recombinant clones developed under this project. Specific assay has been developed for insulin A chain.

Screening for hyperaldosteronism among young
hypertensive patients: (Endocrin, CTC, Pharmacol)

New Research

1. Collaborative study on prevalence of diabetes mellitus in india.
2. A Pilot study on distribution of glucose intolerance and cardiovascular morbidity in population residing at high altitude in the himalayas.
3. Effect of hypothyroidism on estradiol metabolism in post pubertal women.
4. Evaluation of thyroid function in post partum indian women.
5. Clinical trials on traditional remedies for diabetes mellitus.
6. Childhood diabetes registry.
7. Trial of centimizone in cases of hyperthyroidism.

AWARDS AND EVENTS

Distinctions, awards and honours

Prof.M.M.S.Ahuja was awarded Jawahar Lal Nehru Fellowship in May 1988 for two years.

Significant Events

Prof.M.M.S.Ahuja was invited to attend International meeting on - Malnutrition related (tropical pancreatic) diabetes mellitus, at Wellcome Tropical Institute, London;in June 1988.; chaired a session in International Thyroid Symposium held at Tokyo, Japan, in July 1988.; participated in plenary session of the 13th International Diabetes Federation Congress meeting, Sydney, Australia in November 1988.; chaired a plenary session at the Association of Physicaians of India meeting in Calcutta, January 1989.; has been the Vice President for International Conference on Thyroid, Genetics and Environment, Thyroid Association (India) at AIIMS, New Delhi in March 1989.; member of ICMR Expert Committee Group on - Clinical trials on traditional remedies for diabetes mellitus as well as High Altitude Centre of Medical Research.; chaired a day programme on "Diabetes Awareness" at AIIMS, New Delhi in November 1988., presided over C.M.E. programme in diabetes under the auspices of Indo-US Diabetes Association at AIIMS, in December 1988.; presented a key note paper at the Royal College of Physicians, London meeting in New Delhi in January 1989.

Dr.Karmarkar attended the meeting on "Iodine and Brain", cosponsored by Fogarty International Center, National Institute of Health and International Council for the control of iodine deficiency disorders, held at the National Institute of Health, Bethesda, Maryland, U.S.A., March 1988.; the annual board meeting of International council for control of iodine deficiency disorders held at Virginia, U.S.A. March 1988.; is a member of the local organising committee and the secretariat of the "Joint WHO-UNICEF-ICCIDD Inter Country Workshop" held at New Delhi, March 1989.; was the organising secretary of "International symposium on Environment, Genetics and Thyroid Disosrders" organised by Thyroid Association (India) March 1989, at AIIMS.; was the chairperson of a scientific session and delivered a key note address on - Thyroid hormones and brain development.; was elected as Secretary of the Thyroid Association (India).; was a resource person at

the national workshop on National Goitre Control Programme organised by the Directorate of Health Services, Ministry of Health and Family Welfare, held at Bangalore, February, 1989.; attended the planning meeting on IDD control in Maharashtra in Bombay November, 1988.; was the chief resource person for the "State level workshop-cum-training course for assessment of IDD prevalence" held at Nagpur in December.; attended the meeting of the committee appointed by the Government of Maharashtra for examining the need and relevance of "Universal iodation in Maharashtra" as a special invitee December, 1988.

Dr.Kochupillai participated and presented four papers in the International Thyroid Symposium at Tokyo and the 8th International Endocrine Congress at Kyoto, Japan in July 1988 on a travel grant from DST was awarded WHO visiting scientist's grant to visit Harvard Medical School, Boston and the National Institute of Health, Bethesda, USA.; was invited to lecture on - Iodine deficiency disorders in India, at the Royal College of Physicians, London meeting in New Delhi in January 1989.

HOSPITAL SERVICES

The department runs three clinics per week. A total of 14,741 patients were seen (new patients 6,121 and 8,620 old cases).

The following special investigations for indoor and outdoor patients were carried out during this year.

<u>Investigations</u>	<u>Total Number</u>
1. Blood glucose	14,605
2. Plasma cortisol	1,700
3. Serum calcium	915
4. Serum phosphorous	915
5. Alkaline phosphatase	915
6. Protein bound iodine	246
7. Thyroid antibodies (TMA and TRC)	546
8. Total cholesterol	1,262

9. HDL cholesterol	1,105
10. Triglycerides	1,262
11. Uric acid	507
12. Glycosylated hemoglobin	1,755
13. Photomotogram (PMG)	1,300
14. Urinary calcium	469
15. Urinar phosphorous	469
16. Urinary ketogenic steroids	200
17. Urinary 17 ketosteroids	480
18. Urinary glucose	546
19. Urinary albumin	546
20. Urine osmolality	214
21. Urinary free cortisol	480

Radioimmunoassay

1. Thyroxine	3,272
2. Triiodothyronine	2,865
3. TSH	3,230
4. Prolactin	743
5. LH	1,237
6. FSH	1,247
7. Growth Hormone	326
8. Insulin	317
9. Testosterone	878
10. 17-OH Progesterone	153
11. Estradiol	67
12. DHEAS	63
13. Progesterone	7

Community Services and Education

In October 1988 during the annual conference of Heart Care Foundation held at Siri Fort Auditorium, a skit on - Health education for diabetics, was presented.

On November 5th, 1988, a one-day programme on diabetes awareness was held at JNA Foyer, AIIMS. More than 1000 diabetic patients and their relatives attended the function. Lectures, exhibitions, films and recipe demonstrations and panel discussions with experts as well as free blood testing for glucose were arranged.

As part of iodine monitoring programme and neonatal screening in U.P., all newborns detected to be hypothyroid have been provided with one year supply of thyroxine to prevent mental retardation.

PUBLICATIONS

1. Ahuja MMS. Controversies in management of diabetes mellitus. J Int Med Sci Acad 1988, 1:8-14.
2. Ahuja MMS. Consensus on dietary recommendation for NIDDM. Diabetes Care 1988, 11:95-96.
3. Ahuja MMS. Report on MRDM (Tropical Diabetes) Workshop, London. Diabetes Bulletin 1988, 8:29-31.
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5. Ahuja MMS. Profile of hypertension among NIDDM - Indian subjects. CVD Epidemiology Newsletter (American Heart Association) 1988, 44:159-161.
6. Ammini AC. Hirsutism. Indian J Dermatol Venereol Leprol 1988, 54:121-127.
7. Batra CM, Raju R, Mithal A, Ahuja MMS. Serological markers of islet cell autoimmunity in India. Diab Res Clin Prac 1988, 5(suppl 1):S339 (abstr)
8. Mithal A, Ammini AC, Godbole MM, Khurana ML, Karmarkar MG, Ahuja MMS. Late onset adrenal hyperplasia in north Indian hirsute women. Hormone Research 1988, 30:1-5.
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10. Paturi VR, Ushabala P, Seshiah V, Ahuja MMS, Mather HM. The Eluru survey : prevalence of known diabetes in a rural Indian population. Diab Res Clin Prac 1988, 5(suppl 1):S495 (abstr)
11. Rao PV, Pavlic-Renar I, Ahuja MMS. High ethnic susceptibility of Indians to diabetes mellitus. Diab Croat 1988, 17:291-300.
12. Sood A, Thakur V, Ahuja MMS. Effect of chronic opioid administration on glycosylated hemoglobin levels in heroin addicts. Indian J Med Res 1988, 90:51-54.
13. Thakur VS, Thakur V, Singh O, Mithal A, Karmarkar MG, Ahuja MMS. Changes in insulin binding to isolated hepatocytes in undernourished rats on refeeding and weight gain. Diabetologia 1988,37:403.
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Collaborative publications

5

Chapter 6.21

GASTROGNTEROLOGY AND HUMAN NUTRITION

FACULTY

Professor and Head	B.N.Tandon
Additional Professors	R.K.Tandon D.K.Bhargava
Associate Professors	M.P.Sharma M.C.Gupta
Assistant Professors	Y.K.Joshi U.Kapil S.K.Acharya

EDUCATION

Continuing Medical Education

The department organised the following seminars and workshops i)Endoscopic teaching: Two such seminars in the months of April and December 1988. ii) Seminar on Nutrition update was held in March 1989 and was attended by about 100 doctors. iii) Workshop on maintainance of endoscopes in August 1988 with 30 participants.

Prof.B.N.Tandon, Dr RK Tandon, Dr. DK Bhargava, Dr. MP Sharma, Dr.YK Joshi, and Dr. SK Acharya participated in various seminars and symposia and delivered lectures on non ulcer dyspepsia, peptic ulcer, lower gastrointestinal tract bleeding, constipation, abdominal tuberculosis, amoebic disease, ulcerative colitis, UGI bleeding, subacute hepatic failure, ultrasonography, alcohol and GI tract, diabetes mellitus and GI tract, psychotropic drugs and

GI disorders, malabsorption syndrome, gall stone disease, advances in endoscopic technique, ERCP, abdominal pain, tropical liver diseases, portal hypertension, acute liver failure, nutritional aspects of liver disease, elemental diet, nutritional aspects of gallstone disease. These lectures as a part of CME were organised by medical practitioner's society, Jaipur, Indian Medical Association (Delhi, UP, Kanpur, Saharanpur, Bhopal) as well as Associations of Colorectal Surgeons of India, Geriatric Society of India, National Academy of Medical Sciences, Banaras Hindu University, Medical College Udaipur, Bangalore Medical College, RNT Medical College, Udaipur, Associations of Physicians of India, Indian Society of Gastroenterology, Indo US diabetic association, All India Radio, Delhi Doordarshan, Hahnemanian Society of Homeopathicians of India and Indian Academy of Gastroenterology.

Eleven medical students from USA received 4 to 6 weeks elective training in Gastroenterology

RESEARCH

Research Completed

Transmission of enteric non-A, non-B viral particles in macaca fascicularis monkeys

Six *Macaca fascicularis* monkeys were inoculated with the enteric Non-A, non-B (EN NANB) hepatitis virus like particles (VLP) by the feco-oral, intra-venous and portal-vein routes, to study the development of clinical and biochemical changes by a) micro-ELISA and b) Immunosorbent electron microscopy (ISEM), and for the excretion of 27-34 nm enteric NANB VLP in the stool. The results were compared with that of seven monkeys inoculated either with stool extracts from healthy individuals or with normal saline. Elevated liver enzymes have been recorded in 3 of the 4 experimental monkeys after parenteral inoculation of enteric NANB hepatitis virus. Further, excretion of 27-34 nm VLP was observed in the micro-ELISA positive

stools of the experimental monkeys on the 3rd and 30th day, between 15 to 20th day and on the 23rd day of oral, intra-venous and intra-portal inoculations respectively. None of the control monkeys had elevations of serum transaminases or enteric NANB hepatitis virus antigen and virus like particles in their stools. The study indicated that transmission of enteric NANB hepatitis VLP is excellent in *Macaca fascicularis* by parenteral route.

Second passage of enteric NANB hepatitis virus in *Macaca fascicularis* monkeys

Monkeys inoculated with enteric NANB hepatitis virus like particles were studied for the excretion of VLP after 15 to 40 days of inoculation. Stool extracts containing these VLP were pooled, clarified, concentrated and injected parenterally into another set of two monkeys to study the second passage of enteric NANB hepatitis VLP. Both the injected monkeys showed raised transaminase levels after 18 days of inoculation: 27-34 nm VLP were excreted in the stools of these monkeys after 15 days of inoculation.

Use of affinity purified heterologous antibodies in an ELISA for the detection of *Entamoeba histolytica* in fecal specimens.

A simple and sensitive enzyme linked immunosorbent assay (ELISA) has been developed for the detection of *Entamoeba histolytica* antigen in human feces using affinity purified heterologous antibody system. Antibodies purified from pooled human serum from patients with amoebic liver abscesses were used as capture antibodies and peroxidase labelled hyperimmune rabbit serum was used as developing antibody. Only one stool sample was obtained from each subject. Stool samples were positive by ELISA in 117 of 121 (96.7%) patients with *E. histolytica*. In addition 52/152 (32.9%) of the subjects with no demonstrable parasite in a single stool examination, and 39/111 (27.7%) subjects with infections other than *E. histolytica* were also positive. However, the test was negative in 16/17 (94%) subjects where no cysts or trophozoites of

E.histolytica were seen by microscopy. In endemic areas where mixed infections are frequent, the ELISA can be used as a routine screening test based on a single stool examination.

Anti pre-S antibodies in patients with fulminant hepatitis

Presence of anti pre-S antibody was tested in 38 sera from patients with fulminant hepatitis (FH) using a sensitive ELISA technique. It was detected in 50% sera positive for HBsAg negative for IgM anti-HBc, 12.5% sera positive for both HBsAg and IgM anti-HBc and 75% sera negative for HBsAg but positive for IgM anti-HBc. HBV-DNA polymerase activity was high in all the three groups where as anti-HBs activity was low. Presence of antipre-S in two third patients of fulminant hepatitis was due to HBV, in whom HBsAg was absent, indicated that antipre S might be responsible for clearance of HBsAg from circulation.

Semi purification of enteric NANB hepatitis virus by density gradient on ultra centrifuge

Stool extracts containing 27-34 nm VLP were pooled, clarified by centrifugation and semipurified by sucrose cushioning and sucrose as well as cesium chloride density gradient techniques. It was found that enteric NANB hepatitis virus occurs in low titres in the stool samples and are susceptible to heat and storage conditions.

Standardization of a new technique based on ELISA for HBsAg (Disc ELISA)

A number of micro elisa techniques have been in use for the detection of HBsAg in blood. Though we have already standardized a low cost micro-ELISA, we have not been able to satisfy blood bank attached to C.T.C. for their emergency screening of the blood. Keeping the above facts in mind, efforts have been made to standardize a simple, quick and sensitive technique to detect HBsAg in blood. The test has been compared with the micro-ELISA technique for HBsAg being run in

the department for routine use. A total of 627 serum samples were tested and 143 were found to be positive with both the techniques. Both the techniques were equally sensitive. However, disc-ELISA has a number of advantages over already simplified micro-ELISA. The test is simple, quick (less than 30 min), cheap (About 65P in comparison to micro-ELISA-150P), better distinction due to white background of membrane and does not require any sophisticated instruments.

A randomised controlled study of propranolol versus endoscopic sclerotherapy (EST) in poor risk cirrhotic patients.

To compare the efficacy of EST and oral propranolol for prevention of upper gastrointestinal bleeding, 57 patients of cirrhosis of the liver with child's B and C status were randomly assigned to either treatment after an endoscopically proven bleed from esophageal varices. Both treatment groups were comparable with respect to demographic, clinical and laboratory data. EST was given once in 10 days till obliteration of varices. Propranolol was given twice daily at a dose that reduced the resting heart rate by 25%. The results showed that endoscopic sclerotherapy was superior (statistically significant) to propranolol in reducing number of episodes of bleeding, units of blood transfusion required, number of hospitalization for bleeding and number of patients with frequent bleeds. There was a trend in favour of EST towards bleeding free period, patients without any further episodes of bleeding and median survival. There was however, no statistical difference in the two treatment groups in the overall mortality, causes of death and complications.

Efficacy of endoscopic sclerotherapy (EST) on long term management of esophageal varices due to cirrhosis of liver, non cirrhotic portal fibrosis (NCPF) and extrahepatic portal venous obstruction (EHO): Comparison of results

We have analysed our data on the long term effects of EST in the three groups of patients with portal hypertension that we commonly encounter in our country. The parameters included were number of patients with rebleeding, episodes of rebleeding, blood transfusion requirement, probabilities of bleeding free period of survival, eradication and recurrences of varices and complications related to procedure. 156 patients with cirrhosis of the liver, 60 patients with NCPF and 43 patients of EHO were included in the study.

EST decreased rebleeding and blood transfusion requirement in patients of cirrhosis of the liver, non-cirrhotic portal fibrosis and extra-hepatic obstruction. Child's A patients irrespective of the etiology had significantly fewer bleeds, longer bleeding free period and survival than Child's B and C patients. Child's B and C patients were similar in these respects. There was no difference within Child's A (cirrhosis, NCPF EHO) and within Child's B (cirrhosis & NCPF) patients. Complications related to the procedure were similar irrespective of etiology. Patients with extrahepatic obstruction had fewer bleeds compared to NCPF, and cirrhotics. The probability of bleeding free period and survival in EHO was significantly longer than those of cirrhotics. Variceal eradication also occurred more frequently in EHO than in patients of cirrhosis of liver. Non-cirrhotic portal fibrosis patients also bled significantly less and their survival was better than cirrhotics. Variceal eradication occurred more frequently in them than cirrhotics. Thus the results of sclerotherapy were influenced by severity and etiology of liver disease as it was most effective in order of frequency in patients of EHO, then NCPF followed by cirrhosis of liver. Further, Child's A patients irrespective of etiology behaved better than Child's B and C patients.

Endoscopic injection treatment of non-variceal bleeding lesions of upper gastro-intestinal tract.

Endoscopic injection of actively bleeding non variceal lesions (duodenal, gastric and stomal ulcers, angiodysplasia and Dieulafoy's ulcer) with polidocanol was performed in 20, patients. Eleven of 20 had associated diseases. Haemostasis was achieved in 16 (80%). Three rebled, however, bleeding stopped by reinjection in two and spontaneously in one patient. No significant local or systemic complication was observed. Thus endoscopic injection can be utilized for managing bleeding due to non variceal lesions.

Treatment of common bile duct stones in patients with T-tube in situ

Of 7 patients with common bile duct (CBD) stones treated with methyl tertiary butyl ether perfusion through the T-tube, only one had a complete dissolution of the stone and of 10 such patients treated with CBD perfusion of monooctanoin only 3 responded with complete dissolution. The unsuccessful patients were treated with endoscopic sphincterotomy. Except for one patient bile duct clearance could be achieved in all. It is concluded that common bile duct stones in our patients with T-tube in situ are best treated with endoscopic sphincterotomy.

Role of sustained achlorhydria in bleeding peptic ulcer.

In a prospective randomised study involving 20 patients with bleeding peptic ulcer, we have demonstrated that an intensive medical treatment comprising 100 mg. of cimetidine given intravenously every hour for 48 hrs. and a simultaneous nasogastric perfusion of a liquid antacid at the rate of 0.5 ml. per min. is able to achieve sustained achlorhydria and reduction in rebleeding rate in a significantly higher proportion of patients as compared with controls. It is recommended that this regime should be regularly

employed in patients presenting with bleeding peptic ulcer.

Incidence of gallstones in cirrhosis of the liver.

We studied by ultrasonography the liver, gallbladder and biliary tract of 145 consecutive patients with cirrhosis of the liver. Two patients were found to have gallstones, two other patients had biliary sludge in the gallbladder and one patient was noted to have undergone cholecystectomy. Thus, a total of 5 patients (3.5%) had evidence of biliary lithiasis, which is no higher than the estimated prevalence (3-5%) of the disease in North Indians. This is in marked contrast to the increased incidence of gallstones in cirrhotics in the West. The difference may be because of the fact that the aetiology of cirrhosis in the Western patients is predominantly alcohol whereas in Indian patients it is post-hepatitic or idiopathic.

Failure of methyl tertiary butyl ether (MTBE) to dissolve common bile duct stones in postcholecystectomy patients.

In 7 post-cholecystectomy patients with common bile duct (CBD) stones MTBE was perfused through T-tube into the common bile duct in doses varying between 1.5 to 5ml -1/2 to 1 hourly given 7-13 times amounting to a total of 20-66 ml. Complete dissolution of the stones in the bile duct could be achieved with this treatment in only one patient. Others had to be subsequently treated by endoscopic papillotomy (5 patients) or monooctanoin perfusion (1 patient). Side effects of MTBE perfusion included pain in the abdomen, somnolence, vertigo and ethereal smell in the breath. It was concluded that MTBE is not an effective agent for dissolution of retained CBD stones in patients with T-tube in situ.

Post-cholecystectomy syndrome: A prospective study

A total of 350 patients following cholecystectomy were followed up for an average of 2.8 years.

Only 31 (18%) developed abdominal symptoms. While in 10 symptomatic patients the postcholecystectomy symptoms were related to the earlier biliary disease, in other a variety of conditions were responsible for the symptoms including 'essential dyspepsia' in 9 patients. These findings suggest that postcholecystectomy is an anachronism and should be replaced by precise diagnoses of the conditions found in post-cholecystectomy patients.

The efficacy of Famotidine in treating peptic ulcer

In a single blind randomised controlled trial involving 45 patients with peptic ulcers, we have shown that the ulcer healing rates were similar to those with famotidine and ranitidine (86% and 80% respectively). But, the relief in pain occurred somewhat earlier with famotidine than with ranitidine and cimetidine.

Failure of medical dissolution of gallstones: composition of undissolved stones

The stones of 5 patients who had a trial of medical dissolution with ursodeoxy-cholic acid alone or in combination with chenodeoxycholic acid for 6 months or longer were obtained for analysis from the subsequent cholecystectomy. All the five were cholesterol stones but had a rim of calcium carbonate (mostly calcite) on the periphery which defied detection by x-rays and ultrasonography. A routine CT scanning of gall bladder prior to starting medical dissolution therapy may prevent failure of therapy in such patients.

Morbidity in children with and without giardiasis

Morbidity experience during preceding 15 days (loss of appetite, abdominal pain, diarrhoea, cough) as also presence or absence of anemia and hair changes of PEM were recorded in 27 children with giardiasis (diagnosed by formal ether concentration test) aged 24-72 months and uninfected controls matched for age, sex, economic status and birth order. A composite morbidity score was calculated for each child. The mean \pm SD

scores for children with and without giardiasis were 7.26 ± 5.69 and 4.41 ± 4.48 . The difference was statistically significant ($P < 0.05$). It is concluded that giardiasis is a significant cause of morbidity and malnutrition in children.

Comparison of disease awareness and life style in subjects with and without peptic ulcer:

23 proven peptic ulcer patients and 23 controls matched for age, sex, marital status, education and income were interviewed to determine the following parameters: i) Knowledge about etiology, complications, prognosis and management of peptic ulcer (indicated by a knowledge score). ii) No. of cigarettes smoked per day. iii) Amount of alcohol consumed per week. iv) Type of diet (vegetarian or non vegetarian). v) History of any major crises in life. vi) Attitudes and practices aimed at assessing will power and punctuality in daily life (indicated by a composite score). No statistically significant differences were found between the two groups. However, there was a suggestion that nonvegetarian diet and life crises were associated with peptic ulcer.

Changes in nutritional status of patients during hospital stay

Twenty five consecutively admitted ambulant patients were monitored throughout hospital stay (mean 11 days). Their nutritional indices showed a mean \pm SD loss of weight (2.33 ± 2.99 kg.) mid arm circumference (0.58 ± 0.88 cm) and serum albumin ($2.29 \pm 0.668\%$). These changes were statistically significant. Nutritional deterioration was more marked in surgical patients. It is concluded that nutritional support to indoor patients needs to be improved.

Relation of children's nutritional status with health and nutritional knowledge, attitudes and practices (KAP) of mothers;

24 children aged 24-72 months with severe malnutrition and their controls without malnutrition matched for age, sex and economic status were selected. Health and nutritional KAP of their mothers was documented by administering them a questionnaire. Mean \pm SD KAP score was 23.7 ± 3.2 for mothers of normal children 22.4 ± 2.8 for mothers of malnourished children. The difference was suggestive but not statistically significant.

Nutritional knowledge of school students, nursing students and nurses

A questionnaire comprising 10 simple questions about nutrition was prepared. Four questions related to infants and toddlers. The questionnaire was administered to 161 school students (class 10th, 11th, 12th), 45 nursing students in first year B.Sc (after passing class 12th) and 11 nurses. The mean scores for school students, nursing students and nurses were 7.57, 6.87 and 8.73. The difference between school students and nursing students was statistically significant. No difference was observed between boys and girls and amongst children from different grades. It is concluded that:

i) Nutritional knowledge of students joining the B.Sc. (Nursing) course at AIIMS is poorer than that of school students in Delhi.

ii) Boys are equally amenable to nutrition education regarding infants and toddlers nutrition compared to girls.

Gastrointestinal adenomas in Indian patients (GE, Path)

Post-cholecystectomy syndrome: The role of endoscopy (GE, Surg)

Drug induced erosive mucosal disease in rheumatoid arthritis.(GE, Med)

Research Continuing

Plasma fibronectin (F) and complement (C) levels in fulminant hepatic failure (FHF)

Our previous study has shown that Plasma F , an opsonic protein required for optimal function of RE system is reduced in patients of FHF due to either decreased synthesis or increased consumption. Reduction of this protein compromises the function of reticuloendothelial (RE) system and makes an individual susceptible for infections. In FHF 25 to 30% patients die of severe infection. The present study was planned to prospectively correlate the infection rate in FHF with plasma F & C3 levels. The occurrence of infection in patients of FHF was monitored by clinical examination, TLC, DLC, urine culture, blood culture and a chest X-ray. 30 patients of FHF have been included in the study so far.

Prevalence & dynamics of PTH in a large north Indian hospital

Post transfusion hepatitis (PTH) is a well known problem. Even though a lot of work has been done in west, hard data is not available from India about PTH. A study has been planned to find out the prevalence of PTH in blood recipients and to identify the risk factors of donors causing PTH in Indian patients. Blood recipient patients will be followed up for 6 months with a monthly follow up for overt hepatitis, liver functions, HBV markers like HBsAg, anti HBs and IgM anti HBc. Each recipients donor's serum will be tested for SGOT/SGPT, HBsAg and anti-HBs. The analysis of 163 blood recipients is complete. 8.3% developed PTH and 9% of PTH was due to HBV. No risk factors have been identified yet.

SNMC therapy in patients of chronic active hepatitis (CAH) and sub acute hepatic failure (SAHF).

The cost of interferon and/or antiviral drugs for SAHF/CAH is prohibitive. Neominophagen (SNMC) has been found to be effective in CAH in Japan. Since it is cheaper and available, a trial has been started to assess the efficacy of SNMC in patients of CAH and SAHF by monitoring the clinical, biochemical and histopathological improvement.

Clearance of viral markers in cases of HBV induced SAHF/CAH is being assessed. Ten cases each of SAHF and CAH will be studied. Whenever possible a liver biopsy will be done before and after the completion of study. LFT and viral markers will be tested every week. Eight patients (CAH-2 & SAHF - 6 have been included so far.

Ascitic fluid fibronectin(F) in cirrhosis of liver and its correlation with spontaneous bacterial peritonitis (SBP).

F , a known opsonic protein produce by hepatocytes, has a role in clearing infection. Its production goes down in liver diseases which may predispose patients to infections. In cirrhosis SBP rates are high and may be related to low levels of F. A study is being carried out to correlate ascitic fluid F with SBP and severity of liver disease. In addition the role of ascitic fluid F as a diagnostic marker of cirrhosis of liver is being assessed. Apart from clinical & biochemical parameters, F levels will be measured in ascitic fluid. This will be repeated in patients with SBP after treatment. 20 patients of cirrhotic ascites and 10 patients of ascites with other diseases have been studied so far.

Randomised controlled trial of large volume paracentesis (LVP) with IV replenishment of plasma expanders in cirrhotic ascites

LVP has been established as an effective mode of treating moderate to severe ascites. Replenishment of IV albumin (60 to 70% of albumin removed during paracentesis) along with LVP prevents complications and side effects of the removal of ascitic fluid. IV albumin is costly and in average Rs 2000/- is required per patient. On the other hand plasma expanders like low molecular wt. dextran (mol. wt. 40,000) may help in preventing the reduction of blood volume and renal impairment following LVP. IV plasma expanders like LMW dextran is cheap (Rs. 300/- per patient) and easily available. 20 patients (11 receiving LVP + IV dextran and 10 receiving diuretics) have been included in the study so far. The preliminary results indicate an extremely effective role of LVP + dextran in reducing ascites.

Correlation of Mantoux test with viral replicative markers in chronic HBV infection and influence of BCG in clearance of HBV

Most possible reason of long standing HBV infection and viral replication is suboptimal CMI of an individual which allows the HBV to exist in the host. PPD of M.tuberculosis has been previously used as an antigen to test the functional status of CMI. The study is being carried out 1) To correlate the result of Mantoux's test with markers of HBV replication in patients of chronic liver disease induced by HBV' 2) To correlate the status of viral replication, Mantoux positivity with, OKT4/OKT8 cells in blood and tissue.

If a negative correlation between Mx positivity and absence of viral replicative marker could be established then all patients of chronic HBV infection with positive HBeAg will be randomised to two treatment groups viz. BCG and placebo (normal saline) to see whether BCG vaccine can stimulate CMI & help in

clearance of virus. 10 patients of CAH have been included so far.

Prevalence of HBsAg in pre-school age (0-5years)

The study was planned to find out the prevalence of HBsAg in children in early age group (0-5 years) and thus determine the exact mode of HBV transmission in Indian population. Sera from different centres in India are being collected and their HBsAg-status is being analysed by the micro-ELISA technique. The parents and close contacts of HBsAg positive children will also be screened. Relative prevalence of HBsAg in different age groups such as 0-1, 1-3 and 3-5 years will be determined. About 450 sera from various centres has been collected.

Circulating immune complexes (CIC) in E. H. cyst passers

Presence of CIC's have been demonstrated to be an evidence of acute invasive amoebic disease. In an earlier study we have demonstrated the presence of CIC of E.H. in 46% of the cyst passers attending the hospital for abdominal discomfort. There has been a controversy, whether or not to call these subjects as asymptomatic cyst passers and why should we find CIC in the subjects without any evidence of active invasive disease. Keeping in view the above facts, we planned to study a large population of E.H. cyst passers both from the hospital as well as from the community, test them for the presence of CIC and correlated it with the presence of symptoms. This may help to decide the cyst passers who need treatment. Technique has already been standardized in the department.

An ELISA for the detection of mycobacterial antigen in the serum of patients with intestinal tuberculosis

An ELISA has been developed for the detection of Mycobacterium tuberculosis antigens in serum using affinity purified antibodies. The system is being tested in patients with intestinal tuberculosis,

healthy controls and diseased controls with viral and parasitic infections.

Zymodeme patterns in patients with amoebiasis

In a number of laboratories efforts are being made to differentiate pathogenic strains of *Entamoeba histolytica* (EH) from its non-pathogenic strains, based on the zymodeme patterns. One study from India has shown pathogenic zymodeme pattern type 14 to be dominant in patients with invasive amoebiasis. However there is not much information available on zymodemes present in community. We plan to study zymodeme patterns of E.H. both in cyst passers of patients attending the hospital and from the community and correlate the zymodeme patterns with the presence of CIC's of EH.

The technique has been established in the department with the help of University of Bergen Norway.

Effect of homeopathic drugs on inhibition of Hepatitis B virus DNA - polymerase activity.

A number of drugs are being used throughout the world to restrict the DNA-P activity with an aim to arrest the replication of hepatitis B virus. The anti-viral agents like Acyclovir, Suramin, Adenine Arabinoside, Foscarnate, etc. are expensive. A number of homeopathic drugs are being used by general practitioners to treat patients infected with hepadena virus. We propose to study the effect of certain specific homeopathic drugs based on rationale of known in-vitro inhibition of DNA-polymerase.

A known amount of DNA-P positive blood sample would be treated with the drug and percent inhibition of DNA-P activity would be measured using the already set technique. A total of 16 drugs have been used so far and the data is being analysed.

Faecal oral transmission of enteric NANB hepatitis virus from experimentally transmitted monkey to another group of monkeys (third passage).

ENANBH virus (pooled from the stools of the monkeys injected with ENANBH virus) will be given to two *M.mulatta* monkeys and will be studied for biochemical and serological changes.

Ultrastructural changes in NANB hepatitis

Liver biopsies obtained from the experimental monkeys will be studied under electron microscope for ultra structural changes and also for the presence of ENANBH virus particles.

Medical dissolution of gallstones:

We are continuing to induct more patients in the group of gallstone patients being given a combination of ursodeoxycholic acid and chenodeoxycholic acid in the dose of 5 mg and 8 mg/kg/day respectively or a combination of ursodeoxycholic acid (8-10mg/kg/day) and Rowachol (1 tab TDS). The total numbers of patients in the two groups have now become 42 and 24 respectively. Complete dissolution has so far been achieved in 19 (45%) and 9 (37.5%) patients, respectively. There are no side effects with either drug regimen and hence we feel that both are equally effective and are superior to other regimes particularly because of the lack of side effects.

Biliary microlithiasis in patients with right abdominal pain.

Twenty-two patients with right abdominal pain and normal ultrasonography have been examined so far for the presence of microliths in their duodenal bile. The bile is obtained through nasoduodenal intubation and gallbladder contraction by administering ceruletide. Significant number of cholesterol crystals (25 per high power field) have been found in the bile of 10 (45%) patients. Two patients have been operated and both revealed a large number of microliths on the

gallbladder lining alongwith evidence of chronic cholecystitis.

A multicentre study of cholesterol saturation of bile.

A total of 74 bile samples belonging to patients with peptic ulcer disease have been collected from Pondicherry, Madras, Bangalore and New Delhi. Patients did not have any evidence of gallstones by ultrasound as well as palpation during laparotomy. Their analysis is nearing completion. The preliminary results suggest that the bile samples from Delhi based individuals are most lithogenic.

An epidemiological study of obesity and gallstones in different communities in Delhi

Screening of different communities in Delhi by nutritional anthropometry and ultrasound has been started. About 700 individuals have been screened, mostly of one community. High prevalence of overweight and obesity has been found (21.3%). The prevalence of gallstones appears to be only 3%.

Gall bladder volume and emptying in diabetic patients-an ultrasound study:

Fifty two diabetic patients and 15 healthy controls were prospectively studied for gall bladder function by ultrasound examination. The fasting gall bladder volume (FGBV) was calculated by using ellipse formula from the dimensions of gall bladder shadow seen on ultrasound screen. The contractility of gall bladder was measured by calculating post prandial ejection fraction (EF) of the gall bladder. The mean FGBV and EF in 52 patients was found to be 20.7 ± 10.7 cc and $47.5 \pm 20.1\%$ which was not different from that in normal controls. Age, sex, obesity, diabetic control and presence of dyspeptic symptoms had no impact on FGBV and EF. However diabetics of longer duration of disease had poorer gall bladder contractility ($p < 0.05$). Patients with autonomic neuropathy had reduced tone of fasting gall bladder but normal contractility. These results suggest that long

standing diabetics may have poor gall bladder emptying predisposing to gall stones. Patients with autonomic neuropathy had reduced tone of fasting gall bladder but normal contractility.

Incidence of gall stones in diabetics.

Gall bladder volume and contractility study suggest increased gall bladder volume and reduced contractility in long standing diabetics and also in patients of autonomic disturbances which may predispose to gall stone formation. Preliminary study on maturity onset diabetics showed an incidence of gall stones of 9% (8/88).

Incidence of gall stone in cirrhotics (an ultrasound study)

Present study was undertaken to find out the incidence of asymptomatic gall stones in cirrhotics. Ultrasound study was carried out in 187 patients of cirrhosis. Gall stones were seen in 3 patients and sludge in 2 patients. Results indicate no difference in incidence in cirrhotics from general population. Further study is being done in decompensated cirrhotics and in patients with hypersplenism as higher incidence has been suggested in these patients.

Role of cholelithiasis in non ulcer dyspepsia

50 patients presenting with dyspepsia were investigated for presence of gall stones by ultrasound. Gall stones, were present in 2/50 patients, suggesting a low incidence of gall stones in patients of dyspepsia.

4 ASA enema in distal ulcerative colitis

10 patients with distal ulcerative colitis (disease not extending beyond splenic flexure) who had moderate to severe symptoms, were given a 4 weeks course of 4 ASA enemas (2 gm at bed time). After completion of 4 weeks therapy all patient showed significant improvement in clinical, histopathological and

sigmoidoscopic appearance. Randomised double blind placebo trial is being undertaken.

Metabolic labelling of entamoeba histolytica (EH) antigen: Characterization of a 28 D major intracellular antigen

The in vivo incorporation of radiolabeled aminoacids into antigens of EH HM-1: IMSS, is reported. Immuno-precipitation with sera from amebiasis patients revealed a 28 KD antigen present in whole cell lysates of EH. The KD antigen was of cytoplasmic origin as indicated by cell fractionation and titration X-114 detergent phase separation. Immunoprecipitation using sera from patients with both invasive and noninvasive amoebiasis revealed that the 28 KD antigen was the major antigen recognised by all the patient sera tested. Immunoprecipitation analysis using radiolabeled secreted proteins in place of whole cell lysates showed number of bands, including the 28 KD antigen. The data suggest that the 28 KD antigen is present in both secreted and cytoplasmic compartment.

Accuracy of ultrasound in the diagnosis of hepatic outflow tract obstruction (HVOTO)

The present study was undertaken to define the role of ultrasonography (US) in screening and diagnosis of HVOTO. 30 consecutive clinically suspected cases of HVOTO were screened by US (Toshiba, Sonolayer 22A linear scanner) for patency or block in the hepatic vein (HV) and/or inferior vena cava (IVC). 3 patients were excluded from the study (in 2 US was not possible and 1 patient refused liver biopsy and angiography). US revealed patent HV and IVC in 7 patients in whom no evidence of HVOTO was seen on liver biopsy. 20 patients were diagnosed to have HVOTO. Using US as a screening test 17 (85%) out of 20 cases of HVOTO were diagnosed correctly and 3 patients who had patent major HV and IVC had veno occlusive disease which was confirmed by liver biopsy. Site of block was correctly diagnosed in 90% cases. In 10% the block

was not correctly picked up due to enlargement of caudate lobe.

Our results suggest US is a sensitive and accurate test in diagnosing the site of block and should be used as the first investigation of choice for screening and in diagnosis of HVOTO.

Diagnosis of giardiasis by specific IgM antibody using enzyme linked immuno absorbent assay

Ig antibody levels are unable to distinguish current infection of giardia from previous exposure to pathogen. Specific IgM response occur early in many acute infections and decline rapidly in 2-3 weeks. We plan to evaluate the diagnostic value of IGM anti giardia antibody response and to study the patients after treatment to see the effect on IgM response. ELISA for IGM antibody has been established.

Adenosine deaminase activity (ADA) in the ascitic fluid for the differential diagnosis of peritoneal tuberculosis

ADA activity was studied in the ascitic fluid of 53 patients. The ascites was due to peritoneal tuberculosis (11), hepatic outflow obstruction (5), peritoneal malignancy (6), cirrhosis of the liver with spontaneous bacterial peritonitis (7) and cirrhosis of the liver (24). In patients with peritoneal tuberculosis the enzyme activity was significantly higher than in the other group of patients. The results suggest that this test may be used for the diagnosis of peritoneal tuberculosis. The pathophysiologic mechanism to explain the rise in level of the enzyme is unclear. We are testing the cell mediated immune response in these cases.

Association of peritoneal or intestinal tuberculosis and involvement of other organs: laparoscopic study

Thirty two patients of peritoneal tuberculosis, diagnosed by laparoscopy and biopsy were evaluated simultaneously for the associated lesions in abdominal

cavity. The peritoneum was studded with tubercles in 26 of 32 patients. The tubercles were seen over the omentum in 10 patients, intestinal surface in 5 and liver in 9 patients. Six patients had thickened peritoneum which had lost its lusture. Thick adhesions between peritoneal surface and viscera were seen in 12 patients. In 5 patients the adhesions were almost covering the liver, intestinal surface and other viscera.'

Six patients of intestinal tuberculosis (ileocecal) were also evaluated by laparoscopy for associated lesions. In three simultaneous involvement of the peritoneum was present. The peritoneum was studded with tubercles and histological examination revealed caseating granulomas.

Extraesophageal manifestation after esophageal variceal obliteration in portal hypertensive patients

The presence of congestive gastropathy, gastric, duodenal and rectal varices were looked for in 87 portal hypertensive patients of all etiologies after esophageal variceal obliteration. The changes have been evaluated in 32 patients before and after sclerotherapy. Presence of congestive gastropathy, gastric and rectal varices after obliteration of esophageal varices by injection sclerotherapy have been found.

Endoscopic sclerotherapy for esophageal varices: A prospective randomized trial of sodium tetradecyl Vs polidocanol

Thirty two patients with portal hypertension and variceal haemorrhage were randomised to receive either sodium tetradecyl sulfate or polidocanol as sclerosants for sclerotherapy. There was no statistically significant difference in terms of number of injections, sessions required for obliteration of varices and major and minor complications between two group of patients.

Nutrition research and training centre (NRTC)

The NRTC: established in 1985 at AIIMS, was activated during the year. The following field research projects are in progress:

i) Epidemiology of obesity and gall stones - This project will be conducted in 3-4 different localities of Delhi to bring out the difference between different communities. Interim results have been presented before.

ii) Effect of ascaris infection upon nutritional status:

The study is being conducted at Nizamuddin Basti, near AIIMS, which has been adopted as the field area of the NRTC. 180 children in different grades of malnutrition are receiving 2 monthly piperazine, while their controls matched for age and sex are receiving placebo. Height and weight are measured every 2 months. Data collection will be completed by November, 1989.

The epidemiology of extrahepatic portal venous obstruction (EHO) with specific importance to umbilical sepsis. (GE, Surg)

Monoclonal antibodies against enteric NANB virus (Biotech, GE)

A pancreatographic study of malnutrition related diabetes (GE, Rad.Diag)

An endoscopic and histopathological study of carcinoma of the ampulla of Vater (GE, Path)

Prevalence of campylobacter pylori. in patients with nonulcer dyspepsia (GE, Microbiol)

Peritoneal tuberculosis: bacteriologic and immunologic study (GE, Microbiol)

Virulence of organism causing abdominal tuberculosis
(GE., Microbiol)

New Research

1. Detection of Mycobacterial antigen in serum of patients having abdominal tuberculosis by ELISA.
2. Correlation of cell mediated immune response including T & B lymphocytes with adenosine deaminase activity in ascitic fluid.
3. Detection of adenosine deaminase activity in serum of normal individuals, patients of abdominal tuberculosis and other gastrointestinal diseases.
4. Ulcerative colitis and its association with cancer with dysplasia.
5. Colonoscopy in patients of colonic carcinoma for detection of associated lesions.
6. Randomized controlled study between local injection treatment Vs intensive medical treatment in patients of bleeding peptic ulcer.
7. To develop assays for differentiating pathogenic and non-pathogenic strain of E.histolytica using monoclonal antibodies.
8. Gastric motility and emptying in diabetics using radionuclide scans.
9. Control of variceal bleeding by I/V metaclopropamide.
10. Estimation and significance of C reactive protein in acute pancreatitis and its correlation with severity.
11. Pre and postoperative evaluation of pancreatic functions in chronic calcific pancreatitis of the tropics.

12. A search for a cheap, easily available cholelitholytic agent.
13. Is fluoride toxicity a cause of non-ulcer dyspepsia?
14. The effect of aspirin on the hepatic bile.
15. A prospective randomized study of endoscopic papillotomy in patients with stones in the gallbladder and common bile duct.
16. A pancreatographic and pancreatic function study of protein deficient pancreatogenic diabetes.
17. An experimental study to see the effect of tamarind on gallstone formation in hamsters
18. Assessment of total body fat by isotope technique and its correlation with skinfold & BMI.
19. Effect of giardia infection upon nutritional status in a longitudinal study.
20. Effect of nutrition education to school children upon nutritional KAP of mothers.
21. Effect of level of protein intake upon weight loss.
22. Nutritional status and dietary intake of patients with cirrhosis and their matched controls.
23. Efficacy of periodic deworming and iron folic acid administration as strategies of nutrition intervention in a block.
24. Development of serological assays for the detection of enteric non-A, non-B hepatitis virus infection.
25. Development of a probe for enteric non-A, non-B hepatitis virus.

26. Urinary and blood neopterin levels in patients of acute hepatitis with and without complications.
27. Evidence of HBV markers in liver tissues of patients with FHF and SAHF.
28. Randomised trial of essential fatty acids in patients of chr.DU to assess its effect in the relapse rate of DU.
29. Randomised trial of EST VS .EST+ propranolol in patients of cirrhosis liver with variceal haemorrhage.
30. Role of nutritional factors in Ca esophagus.
31. Endotoxin assay development in FHF, SAHF, cirrhosis liver and in patients of SOJ with cholangitis.
32. Blot hybridization technique for the detection of HBDNA.
33. To study the IgM response in patients with giardiasis using ELISA
34. Detection of giardia antigen in serum samples and stool samples using ELISA system.
35. Effect of malnutrition upon mental development - a one point field study.
36. Survey of nutritional knowledge of PHC Medical Officers, CDPOs, MPWs, and AWWs.

AWARDS AND EVENTS

Distinction, Awards, Honours

Prof. B.N.Tandon gave orations on Acute liver failure at the first Minophagen International symposium

in Jakarta Aug., 1988; Intestinal TB at the International Congress of Gastroenterology and Digestive Endoscopy in Rome, Sept, 1988; Non A non-B hepatitis at the 8th Asian Pacific Congress of Gastroenterology and 5th Asian Pacific Congress of Digestive Endoscopy in Seoul (Korea) October, 1988; Hepatitis in pregnancy at the Asian Pacific Association for Society of Pathology in Islamabad, November, 1988; Subacute hepatic failure as Dutta Oration in Chandigarh.

Dr. R.K.Tandon gave orations on Gall stones in India at the National Academy of Medical Sciences in Delhi and Treating gall stones as Bankat Chandra Memorial Trust Oration Hyderabad.

Prof. B.N.Tandon was awarded the fellowship of Indian National Science Congress; appointed as Chairman, Scientific Advisory Committee of National Institute of Nutrition at Hyderabad; Member of the Governing Body of Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow; member of the International Committee of 1st World Congress of Gastroneterology held at Rome September, 1988. member of the International Committee for the Seventh Asian Pacific Association for the study of liver going to be held at Jakarta February, 1990; member of the Scientific Advisory Board of ICMR; Member of the Nutrition committee of Indian National Science Academy and as the regional editor of the journal Gastroenterology Internationale.

Dr. R.K. Tandon was nominated as member of the education committee, Organisation Mondiale de Gastroneterology for the period 1988-92; member of the International Association for the study of liver.

Dr D.K.Bhargava was appointed as a member of the editorial board of International Medical Science Academy

Significant Events

Dr. D.K.Bhargava was invited as a visiting lecturer in Gastroneterology at Memorial Sloan Kettering Cancer Center, New York, USA in October, 1988 and was appointed as a member Laser Users Committee under the aegis of Dept. of Atomic Energy. He delivered lectures on sclerotherapy for esophagial varices, diagnosis of colonic diseases prevalent in the tropics, abdominal tuberculosis, at Fujigaoka hospital, Showa University, Japan; Memorial Sloan Kettering Cancer Center, New York; Montefiore medical center, Albert Einstein Medical College, New York; Veteran Administration Hospital, Eastern Virginia Medical school, Hampton, USA and Interfaith Medical center; New York respectively.

Dr. M.C.Gupta was appointed as the Chief Investigator incharge of the Nutrition Research and Training Centre established by the ICMR at the AIIMS.

Dr M.P.Sharma was appointed as the Associate Editor of the Indian Journal of Medical Ultrasound.

Dr. S.K.Acharya & Dr. Y.K.Joshi were appoinced as the Assistant Editors of the Journal - Tropical Gastroneterology.

Dr. R.K.Tandon was appointed as a member of the Board of Studies of Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow, UP

Mr. B.M.Gandhi, Senior Biochemist of the department was warded the Doctor of Philosophy by the University of Bergen, Norway.

Visiting Scientists

Prof. Jerry Trier, Professor of Gastroenterology, Harvard Medical Schools, USA on 19.11.88 and delivered two lectures: a) Coeliac disease b) Inflammatory bowel disease. Dr. F.W. Narielwala Professor of Gastroenterology at Australia and gave an informal talk on medical education in Australia. Dr.C.W.Imrie,

Consultant Surgeon, Royalk Infirmary, Glasgow, delivered two lectures: a) Diagnosis of acute pancreatitis, b) Management of acute pancreatitis. Dr. Peter Banks, Professor of Gastroenterology at Tufts University USA, took a case conference alongwith Dr. C.W. Imrie on acute pancreatitis.

HOSPITAL SERVICES

Investigations

a) Special procedures -

- 1) UGI endoscopy 2695
- 2) Endoscopic clerothorapy 1225
- 3) Colonoscopy 130
- 4) Laparoscopy 36
- 5) Sigmoidoscopy 176
- 6) Ultrasonography 2423
- 7) ERCP 164
- 8) Sphincterotomy 56

b) Laboratory services

- 1) Serum bilirubin 6900
- 2) Alk. phosphate 6900
- 3) SGOT/SGPT - 7950/7950
- 4) Total protein - 6180
- 5) Albumin - 6180
- 6) AFP - 100
- 7) HBsAg - 15150
- 8) Anti-HBs - 4000
- 9) Amoebic antibody - 350
- 10) Amoebic antigen - 300 Stool - 500
- 11) IgM anti-HBc - 2400
- 12) HBeAg - 400
- 13) HBV-DNA-polymer - 350
- 14) Giardia antigen
 - a) Serum - 150
 - b) Stool - 440
- 15) IgM anti-HAV - 250
- 16) IgM HDV - 175
- 17) Anti-HBe - 400
- 18) TB - serology - 70

ELISA

- 19) D-xylose - 138
- 20) Prothrombin time- 622
- 21) Adenosin deaminase activity in ascitic fluid 53

Special clinics once/wk

- 1) Liver clinic -
- 2) Pancreatic clinic -
- 3) Ulcer clinic -

General OPD services

New patients	-	7940
Old patients	-	14,785

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Papers accepted for publications 11

Papers presented at scientific meetings 26

Integrated Child Development Services

Integrated child development services (ICDS) were extended to 159 more blocks during the year 1988-89. The total number of ICDS blocks is 1952.

Role of AIIMS

AIIMS is the nodal point for Central Technical Committee to sensitise, motivate and take help from the academicians of medical institutions of the country for the national programme. AIIMS has evolved a low cost system for (a) orientation and training of the the medical and paramedical functionaries (b) evaluation of coverage and impact of health and nutrition services (c) monitoring and continuing education and (d) research and implementation of health and nutrition services through consultants, state advisers, officer-in-charge data analysis and advisers.

During the year, 28 state coordinators, 15 senior advisers, 22 officer-in-charge data analysis cell, 104 consultants, 2969 advisers and 4 regional advisers worked for ICDS as honorary functionaries in various states and Union territories. The output of the honorary functionaries in ICDS has been reviewed in a series of state, regional and national level conferences.

Monitoring

As per modified monitoring and continuing education system, the involvement of heads of the medical and health establishments at the district headquarters as chief district adviser has now been well established. Monitoring has been simplified by dividing the primary health centres(PHC) into sectors and by initiating flow of the monitoring reports to central cell directly from the PHC.

During the period April to January 1989 a total of 12462 monthly monitoring reports were received from various functioning ICDS blocks representing over 67.5% of the expected returns. A feed back report is sent to

the head of the state as well as district.

Orientation and training of health functionaries

Orientation and training of district health officers (advisers) and the medical officers (project advisers) is being carried out by the medical college consultants by organising training courses. During the period April to December 1988, 185 training courses were organised in which 143 advisers and 1365 medical officers were oriented. Lectures were delivered on various aspects of health and nutrition to social welfare functionaries.

Evaluation and research

The Central Cell of the ICDS conducts annual surveys in sampled projects every year. A few operational research studies are also initiated from time to time in selected projects. So far, 12 rounds of annual surveys covering 527 projects have been completed. Reports have been provided to nodal ministry at the Central and other concerned departments in the States for an appropriate intervention.

Annual Surveys

a) Follow up survey:

During 1988-89 follow up survey in projects sanctioned on or before 1982-83 and not surveyed after 1984-85 was initiated in 50 projects. The tabulated data of 7 projects has been received and is being analysed.

b) Infant and early childhood mortality

The infant and early childhood mortality study 1988 was initiated in 102 projects. The data from 92 projects have been received and are being analysed. The study is being conducted in 1989 and 1990 in the same projects in 8 states exclusively for rural and tribal areas.

c) Drought affected projects study

The study was initiated in 12 projects of 12 drought affected states. The objectives were:

- 1) To study the impact of drought on vulnerable sections of the population.
- 2) Study of drought relief measures at various levels.
- 3) To recommend appropriate measures to ensure health and nutritional status of people in the drought affected areas. The data of all 12 projects have been received and analysed. The final results and report has been provided to the ministry.

Meetings and Conferences

1. State level conference

In every state and union territory, a state level conference is conducted every three months to review the progress and decide on future actions. A total of 51 such state level conferences were held.

2. Central technical committee meetings

4 central technical committee meetings were held during 1988-89 to review the progress made in training, orientation, evaluation, monitoring and research in the health and nutrition components of ICDS.

Lecture delivered

- 1) Health care delivery in rural areas at a national workshop on Technology Delivery System for Rural Development in Oct., 1988.
- 2) Integrated Child Development Services Scheme in India. Lecture to the participants of IInd orientation course in health and family welfare communication for All India Radio personnel in February, 1989.

Chapter 6.22

HAEMATOLOGY

FACULTY

Professor	A.K. Saraya
Additional Professors	V.P. Choudhry
	M. Bhargava
Assistant Professors	R. Kumar
	H.P. Pati
	R. Saxena

Dr. Choudhry from the department of Paediatric and Dr. Saraya, Dr. Bhargava, Dr. Kumar, Dr. Pati and Dr. Saxena from the department of Pathology have joined the newly created department of Haematology.

EDUCATION

Continuing Medical Education

Workshop on Haemophilia under the joint auspices of the World Federation of Haemophilia, ICMR and Haemophilia Federation of India was held to disseminate current state of the art and to foster haemophilia care in India. A team of three consisting of a clinician (Physician/Paediatrician), laboratory and blood bank personnel (medical or technical) drawn from medical institutions of northern India participated in the workshop. There were 28 participants. An open clinic, symposium, lectures, socio-medical sessions and

technology transfer programmes were held. The faculty comprised of a team of doctors from World Federation of Haemophilia and AIIMS. Dr. Bhargava was the chief organiser of the workshop and participated as national faculty.

Dr. Saraya gave lectures entitled "Diagnosis of anaemia - A practical approach" in the Indo-American CME programme in clinical Haematology held at S.N. Medical College, Agra, December 1988 and "A combined clinical and laboratory approach to the diagnosis of anaemia" in U.P. Chapter annual conference and CME programme of Indian Association of Pathologists and Microbiologists held at J.N. Medical College, Aligarh, Feb. 1989.

Dr. Choudhry gave lectures on "Advances in management of hemophilia" during an update in Pediatric Hematology and Oncology organized by hematology oncology chapter of IAP at Jodhpur and on Nutritional anemia during 29th State annual conference of M.P. branch of IAP at Jagdalpur in January, 1989; participated in the 1st National Workshop on neonatal hematology oncology & symposium on "Recent Advances in the management of hematological disorder in childhood Bombay June, 1988.

Dr. Bhargava delivered talks on "Haematologic problems in the new born" in Goa and on "approach to the diagnosis of haematologic problems in the new born" in Bombay in Indo-British symposium on perinatology; spoke on pattern of All phenotypes in India in Institute day scientific session on "New horizons in cancer" delivered a talk on "Immunophenotypes of acute lymphoblastic leukemia in India" in Indo-American CME programme in clinical Haematology held at Agra, "Coagulopathies in trauma patients" in an Anaesthesia update held at Maulana Azad Medical College, New Delhi.

Dr. H. Pati attended CME on medical technology, Department of Biochemistry PGI, Chandigarh.

Two doctors one from Madras medical college and one from army and two technicians one from Afghanistan and one from Steel Authority Rourkela were provided training in the deptt.

RESEARCH

Research Completed

Acute leukemia in children

326 children seen over the last 14 years accounted 1% of pediatric admissions. Acute lymphocytic leukemia ALL was seen in 72.3% Proportion of children with ALL significantly decreased with the advancing age. CNS involvement was seen in 10.7% of children. Over 60% of children with ALL had one or more of bad prognostic features at diagnosis which is three times higher as compared to Western studies. Over 25% children had L2 morphology and T-ALL was seen in over 35% of children. Thus higher prevalence of T-ALL, L2 morphology along with 60% of children having one or more of bad prognostic factors at diagnosis suggests that the pattern of ALL in Indian children is different when compared with studies from West. Biological characteristics e.g. immunological, cytogenetics, oncogenes and morphological etc. need to be studied to determine the biological characteristics of leukemia in India. Above studies will help in evolving the suitable mode of therapy.

Results of four induction regimens in ALL

Four induction regimens-prednisolone (P) and 6-mercaptopurine (Group I) P and vincristine (V) (Group II), P,V & L-asparaginase (Group III) and P,V and adriamycin followed by cyclophosphamide and L-asparaginase (group IV) have been evaluated. Successful induction remission was achieved in 69.6% in group I, 92.8% in group II, 94.7% in group III and 96.8% in group IV. Relapses were seen in 62.5% , 73.8%, 69.4% and 29.0% cases in the four groups respectively. Relapses seen in group IV were infrequent as compared

to children of group I,II & III. Adverse risk factors were similar in all the four groups. Ninety four children (61.3%) had one or more poor prognostic factors at diagnosis. Three of 43 (7%) children with no poor prognostic factors died during induction therapy as compared to 18 of 94 (19.1%) children associated with poor prognostic factors at diagnosis. Higher mortality was seen under two years of age.

Burkitt's lymphoma in India

Burkitt's lymphoma is uncommon in India and 52 cases including 14 of ours have been reported. The age varied between 9 months to 70 years with a mean of 10.33 years. Male to female ratio was 6.6:1. Male predominance was seen below 13 years (M:F:13:1). These cases have been reviewed to study the pattern of Burkitt's lymphoma in India. Clinical presentation of Burkitt's lymphoma does not resemble either endemic or non-endemic areas. Facial bones were involved alone in 18 (30.6%) cases and in another 9 cases jaw was involved along with abdominal lesion at presentation. Primary abdominal involvement was present in 21 (40.4%) and along with jaw in another 9 (17.3%) cases.

Burkitt's lymphoma in India present with jaw and abdominal lesions in almost equal number. The presentations are different as compared to endemic and non-endemic areas. This may be the third mode of clinical presentation. Six of 14 children seen at AIIMS hospital were treated on protocol therapy having cyclophosphamide, vincristine and methotrexate combination. Complete remission was achieved in 17(50%) children who were in continuous remission varying between 10-48(mean of 24.3) months.

Severity of haemoglobin E-B thalassemia in paediatric and adult patients.

A total of 41 paediatric and 27 adult patients were investigated and diagnosed as Haemoglobin E-B thalassemia. No adult patient was transfusion dependent except a 28 year female needing 3 transfusions in her antenatal period.

In paediatric patients splenic size was bigger (5.8 ± 2.4 cm) than adult group (4.0 ± 3.0 cm.). Anaemia in paediatric group was more severe (5.3 ± 1.3 g.m/dl) than adult patients (7.1 ± 1.9 gm/dl). Level of haemoglobin is higher and HbE lower than adult patients.

Haemoglobin F and E levels were $20.3 \pm 11.3\%$ and $50.5 \pm 15.9\%$ in paediatric patients and $10.5 \pm 9.5\%$ and $64.0 \pm 23.9\%$ in adult patients respectively. Recurrent jaundice is a common problem in adult patients and presented at 16-28 years of age. While the disease onset is from 3rd month till 8 years in paediatric patients.

Multicentric collaborative study on Haemophilia (ICMR)

A total of 391 patients, 179 at AIIMS, 131 at Vellore and 81 at Bombay have been studied from June 1985 to June 1988. The magnitude of haemophilia in this hospital based study was calculated as 1 in 10,000 cases. Haemophilia A constituted 75% of the cases, mostly severe from (73%); the symptomatology conformed to the established pattern. Only 4.6% of haemophiliacs received cryoprecipitates as treatment, 10.6% received fresh frozen plasma and 50% only fresh blood. 14 patients tested positive for HBSAg and 8 of 98 for HIV.

Role of serum ferritin in assessment of activity of the diseases in acute and chronic leukemias.

Serum ferritin estimations by micro ELISA were made in patients of ALL (35), AML (28), CML (10) and CML in blast crisis (10) at the time of first presentation and at partial (PR) and complete remission (CR) alongwith 198 estimations in control subjects. In ALL, the levels at presentation were 550.6 ± 0.27 ng/ml and at remission, 319.5 ± 0.38 ng/ml. In AML, no change occurred at remission, the values being 775 ± 0.27 ng/ml, 828.8 ± 0.4 ng/ml and 988 ± 0.4 ng/ml, at presentation, CR and PR respectively. In all leukemias, the values were much higher than the control values of 55 ng/ml and bore no relationship to age, sex, fever,

organomegaly or haemoglobin and total leucocyte counts.

Screening tests in platelet function disorders:
evaluation & recommendation

In a study of 100 patients of platelet function disorders (PFD), the spectrum was: abnormalities in arachidonic acid pathway in 26, isolated PF3 availability defect with PF3 deficiency (thrombopathic thrombasthenia) in 28, storage pool disorder in 7, Glanzmann's thrombasthenia in 4, Bernard Soulier disease in one and isolated PF3 deficiency in one case. A panel of tests namely bleeding time (BT), prothrombin consumption index (PCI), stypven calcium time (SCT) with high (25 ug/ml) and low (10ug/ml) strength of Russell's viper venom (RVV) with both platelet rich plasma (PRP) and platelet poor plasma, platelet factor 3(PF3) availability with ADP and kaolin in 0' and 20' were done. The relative efficacy of various screening tests of hemostasis showed that in exclusive platelet function disorders uncomplicated by coagulation factor deficiency, a combination of BT, PCI, SCT with 10 ug/ml RVV in PRP and PF3 availability with ADP at 20 min proved most sensitive. Bleeding time showed least sensitivity (34.7%) and PF3 availability test with ADP at 20' being the most sensitive (90%) and SCT (with 10 ug/ml RVV with PRP) and PCI being abnormal in 56 and 69 patients, respectively. A combination of BT and PCI could detect 77% patients. When either SCT or PF3 availability was included, their sensitivity increased to 91% and 97%, respectively. All the 4 tests could detect 98% patients of PFD and are recommended as screening tests.

A study of clinical and immunological correlates of
lupus anticoagulant in systemic lupus
erythematosus(SLE) (Haematol,Med)

Association of cerebrovascular ischemia with lupus
anticoagulants(Haematol, NSC)

Pathogenesis of thrombosis in replaced mitral valves
(CTC,Haematol)

Research Continuing

Infections in leukemias

Forty five febrile episodes in 39 children with acute lymphocytic leukemia have been investigated to determine the cause of fever. The age ranged between 5 months to 10 years. The preliminary results indicate that gram positive organisms are more often responsible for infection. Organisms isolated in these immunocompromised children included staph, aureus (9) Staph albus (7) Clostridium spores (3) and Streptococci (3), while gram negative organisms isolated included Klebsiella (4) Pseudomonas aeruginosa (3) E Coli (3) Actinobactor spores (3) and Enterobactor spores (3). Preliminary results indicate that spectrum of infection in these immunocompromised children are different from other series.

Non Hodgkins lymphoma (NHL)

Fifty one children with NHL have been analysed. They presented with lymph node enlargement (51%), abdominal mass (51%) and fever (43.2%). Hepatomegaly and splenomegaly was seen in 43.2 and 33.3 percent respectively. NHL originated predominantly from abdominal viscera (47%), mediastinum (17.6%), cervical lymphnodes (17.6%) and jaw (15.7%). Histologically NHL was predominantly that of Burkitt's (25%), poorly differentiated lymphocytic (22.5%), diffuse lymphoblastic (17.5%) and differentiated lymphocytic (7.5%). Nearly 72% of our cases presented in advanced stage III as per Saint Jude Children Research Centre staging. Successful complete remission was achieved only in 41% of cases following CVP regime.

Thalassemia

Forty seven cases with thalassemia, who have been regularly transfused at AIIMS have been investigated for growth and development, hepatitis antigen, cardiac and liver dysfunction. Preliminary results revealed that majority of children are undernourished, (grade

III & IV PEM in 81%), with growth retardation of more than 2 standard deviation in 43% of children. Hepatitis B antigen was positive only in 5% of cases. Varying degree of cardiac dysfunction was seen in nearly 85 percent of cases. All the above abnormalities have been attributed to hemosiderosis as serum iron and serum ferritin levels were significantly higher.

A clinicohematological analysis of paroxysmal nocturnal hemoglobinuria (PNH)

Seventeen cases of PNH have been reviewed. Various presenting manifestations include progressive refractory anemia, bleeding episodes, hemoglobinuria and abdominal pain. 14 cases had cellular bone marrow with erythroid hyperplasia. However, three patients had a hypoplastic bone marrow. The rest of the parameters are being analysed.

A study of effect of calcium channel blockers (Diltiazem) on platelet aggregation.

Platelet aggregation performed on 10 normal plasmas, incubated in vitro with diltiazem (10 times therapeutic dose) for 10 minutes, was observed to be significantly reduced with ADP, arachidonic acid and collagen. The study is now being done with lower concentrations of the drug including therapeutic dose.

Disseminated intravascular coagulation. Its spectrum in paediatric patients

Thirty six patients (27 male, 9 female) presenting as disseminated intravascular coagulation have been investigated in last 6 years at Haematology laboratory. Ten were new born and others were from 4 months to 12 years in age. Fifteen cases survived the disease process (new born to 10 years age). Majority of expired cases were male (17). Screening coagulation tests (PPT, APTT, TT, FDP, platelet count and fibrinogen) were done. Correlation of different clinical and laboratory parameters are under study.

Immunologic phenotypes of acute lymphoblastic leukaemia

Pretreatment immunologic marker analysis in 152 adult and childhood patients of ALL/lymphoma employing multiple monoclonal antibodies has revealed three major subgroups, i.e. T-ALL (37.7%), N-ALL (33.1%) and C-ALL (21.5%). The early age peak is absent, males predominate in all groups and leucocyte counts of more than $50,000 \times 10^6/l$ are equally frequent in the three groups. The results show a high prevalence of unfavourable prognostic factors in ALL in our geographic region. The study is continuing.

Cytogenetic and immunologic marker profile in acute leukemias and chronic myeloid leukemia in blast crisis.

Cytogenetic analysis on the karyotypes prepared from different immunologic subgroups of ALL, AML and CML in blast crisis is continuing in collaboration with Prof. Kamada of Hiroshima University, Japan. Of the 25 patients studied so far, Karyotypes were normal in 6. In other multiple abnormalities of deletions, additions and translocations were seen. Marker chromosomes were present in 9 of the 25 cases.

Evaluation of factors predisposing to arterial thrombosis in coronary artery disease (CTC, Hematol)

T and B cell marker profile in haemophiliacs. (Hematol, Med.)

New Research

1. Evaluation of cytological methods in diagnosis of extramedullary involvement in acute childhood leukemia.
2. Role of antiplatelet associated antibodies in patients with chronic ITP.
3. Evaluation of Neuro-psychological abnormalities

in patients of ALL following CNS chemoprophylaxis.

4. Behavioural and psychological impact of acute leukemia on the child and family.
5. Characterisation of acute lymphocytic leukemia in North India. (ICMR).
6. Development of new oral iron chelators for thalassemias.
7. Pathogenesis of anemia in rheumatoid arthritis in Indians: Red Cell ferritin & ferrokinetic studies.
8. Platelet associated immunoglobulin assay and its role in platelet function in immune thrombocytopenic purpura.
9. Red cell ferritin and plasma ferritin in healthy Indian subjects.
10. Factor VIII changes in diabetes mellitus.
11. Role of red cell ferritin in assessment of iron stores in infections and malignancies.
12. Effect of garlic on coagulation, fibrinolytic systems and on platelet functions.
13. Platelet aggregation defects and Malonyldialdehyde (MDA) levels in nephrotic syndrome.
14. A study of lupus anti-coagulant in patients with bad obstetric history.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. Bhargava visited the Department of Haematology PG1, Chandigarh, as visiting Professor. She delivered

lectures on 1) Carrier detection and antinatal diagnosis of haemophilia 2) Diagnostic approach to a bleeding patient and 3) Immunophenotypes of ALL in India.

Significant Events

Dr. A.K. Saraya, attended the WHO Regional Committee for South East Asia as representative of International Society of Haematology and International Committee of Standardisation in Haematology held in New Delhi in September 1988.

Dr. V.P. Choudhry held the office of Editor Indian Journal of Paediatrics, member editorial board of Indian Paediatrics, executive member of Haematology Oncology chapter of IAP, Secretary, Delhi Haematology group and chaired a plenary session on the management of leukemia organized during an update by Hematology Oncology chapter of IAP.

Dr. Manorama Bhargava held the office of member medical advisory board, Haemophilia Federation of India, member editorial board, Indian Journal of Haematology and was one of the experts for formulating the VIIIth five year plan of Institute of Immuno Haematology Bombay.

HOSPITAL SERVICES

Lymphoma leukaemia clinic

Adult haematology clinic

Paediatric haematology clinic

Amputation and reconstruction surgery was performed in the hospital in haemophilic patients with the active laboratory support in monitoring the levels of anti-haemophilic globulin in patients. Advice was given on therapy to keep the patients free from haemorrhage during and following surgery.

Investigation performed

S.No.	Nomenclature	Total Tests
1.	Haemogram	9292
2.	Reticulocyte count	1236
3.	Bone marrow	1792
4.	LAP & other Cytochemical stains	650
5.	LE Cells	2
6.	Screening Coagulation tests	446
7.	T.G.T.	8
8.	Platelet function tests	15
9.	Fibrinogen assay	150
10.	FDP	80
11.	Factor assays (X,IX,V,VII,VIII)	100
12.	Factor VIII inhibitor	7
13.	KCT - Lupus anticoagulant	80
14.	Presumptive test for complete antibodies	2
15.	P.N.H.	75
16.	Sickling	19
17.	Heinz bodies	2
18.	Serum haptoglobin	19
19.	Plasma Hb	108
20.	Urine hemosiderin	15
21.	Coomb's test	73
22.	G-6-PD	90
23.	Osmotic fragility	83
24.	Autohemolysis test	4
25.	Foetal Hb	456
26.	Hemoglobin A2	450
27.	Hb. Electrophoresis	31
28.	Methaemoglobin	7
29.	Serum Iron	240
30.	U.I.B.C.	230
31.	Serum electrophoresis	132

External haematology quality assurance programme :-

Department of Haematology has been running an external haematology quality assurance programme. The current number of participating centres is 70. These consist of hospitals of medical colleges and other

hospitals throughout the country. The blood samples are sent once in every two months and the results are asseessed. The performance of each centre is sent to them with advice, if necessary.

Community Services & Education

Dr. A.K. Saraya gave talks on Rakt ka Kainser, Vanshanugat Rakt Ki Bimari and participated in a discussion on Rakt Ka Kainser on AIR.

Dr. Manorama Bhargava arranged an interaction of 60-70 Haemophiliacs and their families from all over India with a panel of doctors in question-answer sessions at the haemophilia workshop. Discussion centered around problems related to the various aspects of disease, institutional policies and goverment support for the care of haemophiliacs in India.

PUBLICATIONS

1. Choudhry V.P., Leukemia cure in India-Myth or reality, Ind Pediatr 1988: 8: 717-719.
2. Saraya A K. Book review "Sickle cell anaemia and thalassemia: R.G. Huntsman. The Canadian Sickle Cell Society, Canada. Indian J Med Res 1988;88: 295-296.

Collaborative publications

8

Chapters in Books

1. Choudhry V P, Acute renal failure. In Emergencies in children, Ed Singh M., Sagar Publishers 1988 P 219-228.
2. Choudhry V P. Advances in the management of hemophilia. In Current problems in pediatric hematology oncology. Ed Lokeshwar M R, Krishna Moorthy P N 1988 P 49-54.

Chapter 6.23

INSTITUTE ROTARY CANCER HOSPITAL

FACULTY

Chief	B.M.L. Kapur
Additional Medical Superintendent	S.K.Verma
Officer-in-charge	P.C.Choubey
Professor	Vinod Kochupillai
Additional Professors	K. Verma G.K. Rath N.K. Shukla M.M. Rehani
Associate Professor	L. Bijlani
Assistant Professors	S. Chander R. Kumar M. Vijayraghavan N.S.Raj A.Saxena

Professor B.M.L. Kapur took over as Chief of I.R.C.H.. w.e.f. 1.8.88. Dr. N.K.Shukla joined as Additional professor surgical oncology w.e.f. 28.4.88 & Dr. M.M.Rehani as Additional professor medical physics w.e.f. 23.7.88. Dr. N.S. Raj, joined as Assistant professor in Clinical Pharmacology w.e.f. 7th May, 1988.

EDUCATION

Continuing Medical Education

Prof. B.M.L. Kapur, Prof. V.Kochupillai, Dr. K.Verma, & Dr. G.K.Rath participated in the symposium on "New horizons in cancer" September, 1988 as a part of the Institute day celebrations.

Dr. V.Kochupillai was invited to give lectures on 'Multiple myeloma' in the Medicine Update held in Maulana Azad Medical College in December,,1988; 'Prevention and treatment of infections during induction therapy of acute leukemia' at the annual meeting of Association of Physicians of India at Calcutta in January, 1989; conference organised by the ENT department on 'Head and Neck Cancer' talk on 'Role of chemotherapy in the management of head and neck cancer'; Gastro-enterology Delhi Chapter meeting to give a talk on 'Role of chemotherapy in the management of colorectal cancer'. In a CME organised by International meeting of Radiotherapists talk on 'Chemotherapy for non-Hodgkin's lymphoma; in a seminar-cum-workshop in 'In-vitro tissue culture' organised by Bio-chemistry department of AIIMS, talk on 'Cancer chemotherapy'. During the meeting of Indian Association of Cancer Chemotherapists held in Bombay in February, 1989; lecture on 'Fetal liver transplantation.

Dr. G.K.Rath gave lectures on "Planned combinations of radiation and surgery in T₃ and T₄ head and neck cancers" and "Role of radiation therapy in testicular tumours" as a National faculty member in the Indo-US conference (C.M.E. programme in Radiation oncology) held at the Assam Medical College, Dibrugarh in November 1988; guest speaker for the update and workshop on Oral cancer held at the Cancer hospital and Research Institute; Gwalior in December 1988; "Radiotherapy and oral cancer" Christian Medical College, Vellore: "Role of radiation therapy in the management of carcinoma tonsil" on the occasion of the conference of Association of Radiation Oncologists of

India (Tamilnadu chapter) in September, 1988; Indian Society of Head and Neck Oncology: panel discussion "Laryngeal and Hypopharyngeal tumours" during the 3rd annual conference and workshop of the society held at the Maulana Azad Medical College, New Delhi in December, 1988; International College of Surgeons (Indian Section): speaker in the symposium on "Carcinoma breast" during their North Zonal conference held at Sir Ganga Ram Hospital, New Delhi in March, 1989; panelist in the session on "Oral and oropharyngeal cancers" during the advanced course on surgery of cancers of the oral cavity, oropharynx and the salivary glands" organised by the department of Otolaryngology, AIIMS in September, 1988; panel discussion on "Proptosis and orbital surgery" in the workshop on Oculoplasty and orbital surgery organised by DR. R.P. Centre in November, 1988.

Dr. N.K. Shukla was a panelist in the discussion on "Oral & Oropharyngeal Cancers" in the advanced course on 'Surgery of cancers of the Oral Cavity, Oropharynx and salivary glands' organised by the Department of ENT, AIIMS New Delhi September, 1988; attended 22nd Endoscopic teaching seminar organised by the department of Gastroenterology AIIMS, New Delhi, Nov-Dec 1988; organised a CME programme on "Management of non traumatic surgical emergencies" preceeding the a annual conference of Golden Jubilee year of the Association of Surgeons of India at AIIMS, December, 1988; lecture on "Treatment decisions in patients with cancers of the Oral cavity" in the advanced course on "Surgery of cancers of the Oral cavity, Oropharynx and salivary glands", organised by the department of ENT, AIIMS, New Delhi September, 1988.

Dr. M.M. Rehani: lecture on Radio-immunotherapy - "Magic Bullets" in the symposium of Immuno-scintigraphy and Immuno-detection held at Batra Hospital, New Delhi October 1988; panelist at the discussion on "Medical physics as a profession and discipline" at KMIO, Bangalore January, 1989.

A radiation oncologists and a medical physicist from Medical College Jammu were trained in the use of

Selectron and Selectron treatment planning system for a period of two weeks in May, 1988.

Three students from the division of Radiological protection, Bhabha Atomic Research Centre, Bombay received practical training for a period of 4 weeks in August, 1988, in radiation oncology.

RESEARCH

Research Completed

Comparison of induction chemotherapy with adriamycin or L-asparaginase in adult acute lymphoblastic leukemia (ALL):

A prospective randomized trial comparing the efficacy of Vincristine, L-asparaginase and prednisolone (VLP) Vs. Vincristine, adriamycin and prednisolone (VAP) as induction chemotherapy in adult acute lymphoblastic leukemia was initiated in 1985. Of the 16 patients on VLP combination chemotherapy 10 could complete therapy: six patients developed persistent hyperamylasemia and/or symptomatic pancreatitis. Of the 10 patients who completed therapy, six achieved complete remission. Of the 18 patients on VAP chemotherapy, 12 achieved complete remission. VAP regimen in our study as also indicated by other investigators appears superior to VLP regimen.

Randomized trial on antiemetic efficacy of high dose Vs. intermediate dose metochlopramide Vs prochlorperazin promethazine and lorazepam in patients receiving cisplatinum

A prospective, randomized, single blind controlled trial was initiated in March, 1988. Sixty patients receiving Cisplatinum in the dose of 80 mg/sqm were randomly assigned to one of three antiemetic arms of the study. Metochlopramide was used in the doses of 10 mg/kg (high dose), 2.5 mg/kg Lorazepam 1 mg, promethazine 1 mg/kg and prochlorperazine 1mg/kg.

83.3% of patients given combination antiemetics achieved significant control of emesis (3 vomits or less), while 78.9% of patients given high dose Metochlopramide and, 70% of patients given intermediate dose metochlopramide did so. Control over nausea and retching was similar in the high dose metochlopramide and combination arm (84% and 88% respectively) while it was poorer in intermediate dose metochlopramide group (75%). The degree of sedation was more in the combination arm. The cost of drugs in the combination group was around Rs.16/-, intermediate metrochlopramide group Rs.27/- and high dose metochlopramide Rs.110/- Combination antiemetic therapy is as efficacious and much cheaper than the more widely recommended high dose Metochlopramide.

Immuno-histochemical localisation of keratin proteins in tumor diagnosis.

Significant findings in the study were: a) Commercially available DAKO polyclonal rabbit antiserum to human keratin gave good results on routine parafin embedded tissue. b) It was useful in distinguishing squamous cell carcinomas (23 cases) transitional cell carcinomas (6 cases) and mesothelias (1 case) which stained positive, from lymphomas and mesenchymal tumours (10 and 6 cases respectively) which stained negative for keratin. c) Adeno carcinoma (21 cases) showed variable staining, from negative (13 cases) to faint positive (7 cases) to strongly positive (1 case), d) as the only keratin positive adenocarcinoma was an infiltrating duct carcinoma of the breast, 12 other breast carcinomas were then stained. For comparison, 7 cystadenocarcinomas of the ovary were also studied. One of 7 ovarian adenocarcinomas and 3 of 12 breast carcinomas stained definitely positive for keratin. Thus keratin stain on adenocarcinomas does not appear to be of diagnostic help if paraffin embedded tissue is used. e) Kertain stain was most useful in distinguishing poorly differentiated carcinomas (8- 12 were strongly positive) from histiocytic lymphomas which were almost invariably negative. f) Other tumours which were found to be negative for keratin were melanomas (4 cases) pheochromocytoma (1 case)

astrocytoma (1 case) and benign nerve sheath tumour (1 case)

Combined modality management of advanced buccal mucosal carcinoma (IRCH, Surg)

The role of serum thyroglobulin as a tumor marker in carcinoma thyroid (IRCH, Endocrin, Nuc. Med., Surg.)

Study of duodeno-gastric bile reflux in a thoracic stomach (IRCH, GE, Nuc.Med. Surg.)

Research Continuing

Combination of COPP. Vs COPP alternating with ABVD in advanced Hodgkin's disease:

Prospective randomized study to evaluate the superiority of alternating chemotherapy regimen Vs COPP regime is being carried out. Of the 22 patients in the COPP arm, CR was achieved in 6 patients, 8 patients are actively on treatment/have had partial response, 4 have expired and 3 are lost to follow up. Of the 18 patients on COPP/ABVD arm, CR was achieved in 5, 4 are actively on treatment and 9 are lost to follow up. The study is being continued.

Non-Hodgkin's lymphoma (NHL)

Thirty five patients each of diffuse NHL in stage III and IV were randomised to receive CHOP (Cyclophosphamide, Adriamycin, Oncovin and Prednisolone) and P-CHOP (Procarbazine and CHOP) therapy. There were 24 and 23 patients evaluable in each arm respectively. Thirteen (54%) achieved complete remission (CR) in CHOP arm while 12(52%) achieved CR in P-CHOP arm.

Non-small cell lung cancers:

Thirty four patients of inoperable and/or metastatic non-small lung cancers were randomized to placebo and chemotherapy (cisplatinium, bleomycin and 5-FU). There were 17 patients in each group of which 9

patients were evaluable in each group. Six patients in chemotherapy group achieved minor response or no change while only 1 patient in placebo group had no change.

Role of busulfan alone Vs. maintenance chemotherapy with 6-mercaptopurine Vs. Immunotherapy in the form of levamisole in chronic myeloid leukemia

One hundred and twenty five patients of chronic myeloid leukemia in chronic phase have been accrued for the present study. 43, 41 and 41 have been randomized in each arm of the therapy respectively, since the follow up time is very short, the results have not been analysed.

Study of mismatched fetal liver transplantation in rhesus monkeys

Nine monkeys were conditioned with total body irradiation and cyclophosphamide. This was followed with fetal liver infusion alone in 4 monkeys and along with fetal thymus cells in 5 monkeys. 7 monkeys died without any evidence of engraftment. One monkey had autologous recovery and 2nd had mixed chimerism which lasted for 14 months.

Clinical trials - multicentric study on Kshaarsootra treatment for anal fistula, (I.C.M.R.) project

Kshaarsootra is an ancient Indian method of treatment of anal fistula by putting a medicated thread in the fistulous tract which causes slow chemical cutting and simultaneous healing. 347 patients of anal fistulae have been inducted in the study. 231 patients have been randomised, 125 in Kshaarsootra group & 106 in surgery group. Of 79 patients who completed treatment with Kshaarsootra & healed, 3 developed recurrence, 2 developed rectal prolapse & 1 developed anal incontinence to flatus & liquid faeces. Of 61 patients operated & healed, recurrence of fistula was seen in 3 patients and incontinence in 2 patients. Thus Kshaarsootra appears to be a simple, safe, out patient method of treatment of anal fistulae with results

comparable to surgical treatment.

Tissue characterization by in-vitro NMR proton relaxation time measurement :

Most of the work on tissue relaxation time measurement in-vitro has been on normal and pathological tissue in separate animals or humans. The situation in imaging demands knowledge of T_1 , T_2 in involved and surrounding un-involved tissue as well, so as to explain the contrast from diagnostic point of view. With this aspect in mind we have undertaken the study to estimate relaxation time parameters in human cancers. The preliminary work have been carried out on cancers of oral cavity & cervix. The results are encouraging and further work is being pursued.

Evaluation of ICRU protocol parameters for brachytherapy:

The remote controlled after-loading system-Selectron, has provided better, safer and accurate method of treatment of cancer of cervix. This has necessitated meticulous dosimetry and treatment planning. In the present study, calculation of dose distribution have been made for two planes: dose at bladder reference points, rectum and at points related to bony structure and volume of tissue covered by the reference dose level has been estimated. With the application of ICRU guidelines for dose calculations on our patients, it has been observed that volumetric analysis brings down the complication rate.

Optimisation in exposure & processing:

It is well known that the diagnostic efficacy of a radiograph is dependent upon a number of parameters of which exposure & processing play an important role. Our attempt is to objectivise these by (a) daily control of automatic film processor function by the use of sensitometer so as to achieve uniformity and consistency in density. (b) Calibrating the exposure parameters of video camera of CT so as to provide optimal contrast & (c) Inter-correlation between

exposure control and processor condition. A total of over 700 film strips have been evaluated for base plus fog, speed index, and contrast index. Based on above, visual index of performance status from sensitometer strips have been evolved.

Quality control studies and film retake rate:

In this study various facets of maintaining film quality in radiological imaging have been analysed. Firstly, the film retake rate, as per WHO report was estimated in different settings and the results are: CT with automatic processor gave retake rate of upto 4%, radiography with film processor 6-10%, radiography with manual processing 8-19%, The major contribution to the retake rate was from over/under development (relative% of 28%), over-under exposure 22%, scratches and improper wash 16%, positioning error 10%, room light leak 8%, fixer marks 7% excess fog 5% and movement blur 4%. Appropriate quality control (QC) tests were conducted and measures taken to handle above factors. After introduction of QC the retake rate in the controlled study was brought down from 14.3% to 5.1%. The importance of such study done in actual patient work as above need to be underscored and further work is being continued to achieve consistency.

Effective dose equivalent from diagnostic procedures:

Normally the radiation doses delivered by any radiodiagnostic procedure is expressed in terms of dose to skin, bone marrow and gonads. These values for different investigations can not be meaningfully compared. With the introduction of the concept of effective dose equivalent (EDE) by ICRP, attempt has been made to calculate the EDE values for the conventional radiological procedures from tissue dose values available in literature. A data bank is being created for EDE values for a variety of operating conditions.

Anterior chemotherapy in locally advanced breast carcinoma: (IRCH, Surg)

Induction chemotherapy in head and neck cancers (IRCH, Otorhino)

Brian tumours: (IRCH, NSC)

A prospective randomised study of advanced (stage III & IV) carcinoma of larynx to evaluate the role of radiotherapy and surgery Vs. Chemotherapy and Radiotherapy : (IRCH, Otorhino)

Preoperative radiotherapy followed by surgery in carcinoma oesophagus (IRCH, Surg)

New Projects

1. Chemotherapy in advanced cancer cervix
2. Chemotherapy in metastatic osteosarcoma
3. Adjuvant chemotherapy in osteosarcoma
4. Chemotherapy in soft tissue sarcomas
5. Chemotherapy in metastatic soft tissue sarcoma
6. Chemotherapy in testicular tumours
7. Salvage chemotherapy for testicular tumours
8. Development of indigenous computerised treatment planning system
9. Laparoscopic evaluation in cancer of stomach & lower third of oesophagus.
10. Screening of human papilloma virus (HPV) in oral cancer & premalignant lesions of oral cavity and its correlation with established etiological factors.
11. A prospective randomised trial to evaluate role of induction chemotherapy prior to definitive local therapy in stage III & IV cancers of buccal mucosa

and its comparison with standardd combination of surgery and radiotherapy treatment.

12. Determination of methotrexate concentration in body fluids by HPLC in cancer patients.
13. Determination of human serum glibenclamide at therapeutic level by HPLC in diabetic patients.
14. An operational assessment of adverse drug reactions in hospitalised patients.
15. Role of chemotherapy and radiotherapy versus radiotherapy alone in base of tongue cancers.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. Lalit Kumar,, Pool Officer, Medical Oncology, has been awarded the KGMC fellowship for 1989 by Indian Association of Cancer Chemotherapists in the conference held in February, 1989 at Bombay.

Dr. Pankaj Gupta, Senior Resident, Medical Oncology, received the Best Paper Award in the 5th Binennial Conference of Indian Association of Cancer Chemotherapists in February, 1989 at Bombay for his paper entitled "Multiple myeloma - experience at IRCH, AIIMS.

Dr. G.K. Rath was conferred the Rotary Vocational award.

Significant Events

Professor Vinod Kochupillai was selected by Indian Council of Medical Research for Indo-USSR collaborative programme in the area of bone marrow transplantation. She visited USSR in October, 1988 and identified areas of possible collaboration.

Dr. G.K.Rath was invited by the J.L.Medical college, Aligarh Muslim University as an expert to

advise regarding the installation of cobalt-60 machine; continued to be a member of the project Review Committee (Oncology & Pathology) of the Indian Council of Medical Research; chaired a scientific session at the Indo-German symposium on Recent-Advances in Radiation Oncology held at the Institute of Nuclear Medicine and Allied Sciences, New Delhi in March, 1989 and at the "International C.M.E. in Radiation Oncology" held in New Delhi in March, 1989.

Dr. Rehani chaired scientific session at IX conference on Medical Physics; was invited to attend a meeting of expert panel and assessors on Radiological Measurements organised under DST programme of National Coordination of Testing & Calibration facilities during August, 1988; included in the panel of experts of UPSC; nominated as Member Secretary of the Radiation Safety Committee of A.I.I.M.S.; member of Editorial Board of Indian J. Nuclear Medicine.

Dr. N.S. Raj, was nominated as a member of drug technical advisory board, Ministry of Health and Family Welfare.

The cancer foundation donated Rs. 3 lacs to the Institute at a specially organised public function for the Interstitial Brachytherapy facility for Radiation therapy.

The IRCH organised a meeting on modalities of cancer treatment with special reference to hyperthermia in collaboration with the Planning Commission and the ICMR.

Visiting Scientists

Prof. T.S. Vats, Professor and Chief, Division of Hematology Oncology at the University of Kansas Medical Centre, USA, visited Medical Oncology Division and delivered a talk on 'Recent Advances in the Management of Brain tumours'.

HOSPITAL SERVICES

O.P.D. attendance

New cases	6728
Old cases	24973
Total	31701

Admissions in the ward:

Medical oncology	379
Radiation oncology	332
Total	711

O.P.D. chemotherapies

Outpatients treatment	8307
Day care treatment	2465
Total	10772

Number of O.P.D. procedures 2166

Medical oncology:

OPD attendance (New and old)	13149
Admissions in ward including day care services	2844
O.T. services (minor procedures)	1104

Blood Component Therapy

Medical oncology is providing blood component support to patients with the use of a haemonetics V-50 cell separator to all patients at AIIMS.

Radiation Oncology:

Paediatric radiation therapy utilising general anaesthesia has been started.,

Work Load:

Total cases on radiotherapy (new & old)	29907
Status check clinic	4117
Treatment planning & simulation	2670
Dose calculation	2925
Two and three dimensional dose distribution	695
Wax. mould	72
Compensators	327
Shielding blocks	25
Simulation x-ray	1285
Radiation planning review	1264
Cases treated on selectron	174

Clinics at IRCH

Adult lymphoma leukaemia clinic
Paediatric leukemia clinic
Breast & GI cancer clinic
Bone and soft tissue cancer clinic
Gynaecological cancer clinic
Urology malignancy clinic
Paediatric cancer clinic
Pain clinic

The clinics provide multidisciplinary approach to cancer treatment by surgical, medical and radiation oncologists.

Surgical Oncology:

Procedures performed in minor O.T. of I.R.C.H.

Surgical

1.	Open biopsies	107
2.	Punch biopsies for oral cancer	20
3.	Orchidectomy (for cancers of male breast, prostate & testis	23
4.	Circumcision	2
5.	Prostatic biopsy	10
6.	Intravesical chemotherapy	98
7.	Cryosurgery	20
8.	Fine needle aspiration cytology	271

Endoscopies

1.	Laparoscopy	6
2.	Cystoscopy	55
3.	Colposcopy	520
4.	Sigmoidoscopy	2

Facility for upper gastrointestinal endoscopy has been started recently at IRCH for detection of cancer of oesophagus & stomach.

Medical

1.	Bone marrow aspiration	307
2.	Bone biopsies	466
3.	Lumbar puncture	249
4.	Pleural aspiration	88
5.	Pleural biopsies	22
6.	Peritoneal tap	64
7.	Peritoneal biopsy	4

Medical Physics:

All diagnostic x-ray machines were surveyed for radiation safety. The staff participated in treatment planning of radiotherapy patients, dose calculations, design and fabrication of shielding blocks, compensators, wax moulds and radiation protection activities. The inventory of radiation sources in the Institute has been prepared. Over 900 quality control tests have been done on diagnostic x-ray & nuclear medicine equipments and weekly schedule of QC tests on therapy machines is adhered to. Regular radiation surveys of all patients administered with I-131 for cancer has been carried out, to assess body burden of I-131.

Clinical Pharmacology:

Karayagum (sterculia) adhesive plates for ileostomy colostomy was made available for surgical unit.

Radiodiagnosis:

1.	Routine x-rays	5822
2.	C.T.Scans	2004
3.	Bariums	140
4.	IVP	74
5.	Mammogram	184

Delhi population based cancer registry:

The registry staff constinued to collect data on cancer patients from 23 major medical centres of Delhi. Only patients, resident in Delhi for atleast 1 year prior to diagnosis, were finally included. During the year 1987 data on 11,775 cancer patients was obtained. Out of these 3270 cases could be registered for population based registry. Another 536 cancer deaths were recorded in the period.

Community Services and Education:

Professor V.Kochupillai and Dr. G.K.Rath participated in cancer detection camp held at Mathura, September, 1988, organised by Dr. S.S.memorial Charitable trust. Dr. N.K.Shukla, Dr. L.Kumar, Dr. S.Singhal and Dr. P.Fernandes participated in a similar camp at Mathura February, 1989.

Dr. N.K.Shukla, Dr. S.Chander, Dr.L.Kumar, and Dr. P.Fernandes participated in medical camps for detection of cancer in the rural and urban population of U.P. Feburary, 1989 at Haridwar and at Roorkee, organised by Shri Kanchi Kamkoti Peetam Shankar Sewa Charitable Trust and Indian Overseas Bank as a part of Nehru centenary year programme.

Professor B.M.L.Kapur, gave a write up in the special supplement of Statesman dated 11th January, 1989, on the occassion of intercity Rotary meet cum exhibition at Jawahar Lal Nehru Auditorium, organised by Cancer Foundation and Rotary Club Delhi. Dr. G.K.Rath gave an article pertaining to role of radiation oncology in treatment of cancer to educate the public. For the same occasion, Dr. G.K.Rath, Dr.

N.K. Shukla and Dr. M.K.Singh prepared posters for bringing awareness for early detection and prevention of cancer in public.

Dr. S.De., Dr. G.K.Rath and Dr. S.Chander wrote an article on 'radiation therapy in Head & neck cancer' in the cancer foundation news for the general public.

"Health or Tobacco (HOT) group" continued its activity against propagation of tobacco habits with the help of posters, slides, visual displays in the campus. Dr. Kusum Verma, Dr. M.K.Singh, Dr. G.K.Rath and Dr. N.K.Shukla are active members of the group from IRCH.

PUBLICATIONS

1. Choudhry VP. Leukemia cure in India - Myth or reality. Indian Pediatr 1988, 8: 717-719.
2. Datta N.R., De S., Rath G.K. and Chander S. Giant cell tumour of thoracic vertebra: A case report and review of role of radiation therapy. Indian Med. Gazette. 1988;72:-198-200.
3. Ganesh T., Sharma S., Joshi R.C., Narayanan S., Kumar R., Sahi U.P., Chander S. and Rath G.K. Selectron planning system. An overview (Abstract) A.M.P.L. Med. Phys. Bull 1989; 14:7.
4. Gupta P. Misra A. and Kochupillai V. A case of myelodysplastic syndrome: an unusual presentation and partial response to non-cytotoxic combination therapy. Ind. J. Haematol. 1988: 6;213-215.
5. Kumar L. Gupta B., Aggarwal S.Mishra A. and Kochupillai V. Low dose cytosine arabinoside in acute non-lymphoblastic leukemias and myelodysplastic syndromes. Natl. Med.J.India 1988; 1:229-232.
6. Kumar L., Dua H, Kochupillai V. Low dose cytosinearabinoside in acute non-lymphoblastic leukemia. Cancer 1989: 63:415-418.

7. Rehani M.M. Radiation protection in early pregnancy status of 10 day rule. (Editorial). Ind. J. Nucl. Med., 1988: 3:57-59.
8. Singh K., Kumar R. and Rath G.K. Our experience in the treatment of head and neck cancer by using compensators (Abstract) A.M.P.I. Med. Phys. Bull 1989:14:25.

Collaborative research publications

12

Chapter in Books

1. Dhawan I.K. Bhatanagar A.K., Shukla N.K., Khazanchi R.K., Bijlani L. and Rath G.K. : The incidence & biological behaviour of cancers of the oral cavity - Indian experience. Oral cancers and jaw tumors, Ed. Ho Kee Hai and Loh Hong Sai, Professional postgraduate services, Tokyo, Japan, 1988. p 16-21.
2. Dhawan I.K., Bijlani L., Rath G.K., Khazanchi R.K., and Shukla N.K.: Current trends in the management of T₃ and T₄ lesions of the buccal mucosa. Oral cancers & Jaw tumors, Ed. Ho Kee Hai & Loh Hong Sai, Professional postgraduate services, Tokyo, Japan, 1988 p 109-112.

Papers presented at scientific meetings

32

Papers accepted for publication

8

Chapter 6.24

MEDICINE

FACULTY

Professor and Head	K.K. Malhotra
Professors	J.S. Bajaj A.N. Malaviya Vinod Kumar J.N. Pande
Additional Professors	S.P. Gupta J.P. Wali
Associate Professor	O.P. Malhotra
Assistant Professors	S.K. Sharma A. Kumar A. Misra

Professor K.K. Malhotra went on a foreign assignment for a period of one year w.e.f. 31.1.1989 Professor J.S. Bajaj has taken over as Head of the Department of Medicine.

Dr. Vinod Kumar and Dr. J..N. Pande were promoted as Professor of Medicine.

A new department of Nephrology has been created at the Institute. Dr. S. C. Dash and Dr. S.C. Tiwari have opted to work in the Department of Nephrology.

Professor Vinod Kumar became Professor-in-charge Employees Health Scheme (Family Medicine) w.e.f. March, 1989.

Dr. S.C.Tiwari left for Abu Dhabi on 12th March, 1989 on a short term assignment.

Dr. Ashok Kumar and Dr. Anoop Misra have been appointed as Assistant Professors on ad-hoc basis.

EDUCATION

Paraclinical

The department has started a new course of education and instructions for AIIMS nurses, dealing with the subject of AIDS and infection control related to HIV infection.

Twenty three students from Universities of Edinburgh, Glasgow, Kuala lampur, Tehran, Colombo, Canada, and from medical institutions received short-term training in the Department of Medicine.

Continuing Medical Education

Prof. Bajaj was the moderator and chair person of the session on male Pseudohermaphroditism held as a part of International Workshop on Recent Advances in Neonatal Surgery and Intersex Disorders, New Delhi, March, 1989; delivered lectures on Current aspects of the etiology and classification of diabetes mellitus at the National Institute of Nutrition, Hyderabad, in February, 1989; on Diet and diabetes at the Diabetes Update programme organised at Comilla, Bangladesh in February, 1989; Hyperlipidemias as the valedictory address at the Workshop on Atherosclerosis organised at the All India Institute of Diabetes, Bombay with the support of National Academy of Medical Sciences; Futurology of Diabetes at the joint annual conference of the Association of Physicians of India held in Calcutta in January, 1989 where he was the moderator of a session. He was the chair person and moderator of the session use/abuse of Psychotropic substances in the national workshop on 'Rational use of psychotropic substances' held at AIIMS, New Delhi January, 1989; was the Chairman, Planning Committee for the organisation of conference on Continuing Education in Health Sciences at Christian Medical College, Ludhiana in

February, 1989; lectures at educational courses conducted by the National Institute of Communicable Diseases, New Delhi and by the Diabetic Association of India, Southern Chapter, Hyderabad.

Prof. Malaviya participated as resource person in the following workshops, seminars and symposia:- (a) WHO-Bangkok workshop on 'case management of AIDS', (b) Government of India - WHO workshops on 'Clinical Management of AIDS at Bombay and Lucknow (c) DGHS - Workshop on AIDS - Delhi.(d) ICMR-WHO workshop at Delhi University on 'Role of law in controlling AIDS' (e) Indo-French Colloquium at NII, gave a talk on 'AIDS - some issues in India' (f) Reproductive endocrinology workshop in Dept. of Obst. & Gynae., AIIMS - talk on 'Obstetric issues and AIDS'(g) Was the convener and organiser of the Government of India - WHO workshop on 'Clinical management of AIDs at AIIMS, March 1989; gave lectures in the following CME programmes:- (a) Zoological Society of Zakir Hussain College, Delhi University. (b) Guest lecture in the annual meeting of Indian College of Allergy and Applied Immunology, held at CSIR - Centre for Biochemicals, Delhi. (c) IMA - College of General Practitioners, Delhi. (d) Immunology course at National Institute of Immunology. (e) Indian Society of Malaria and Communicable Disease, Delhi. (f) IMA - College of General Practitioners, Kanpur sub-faculty. (g) National Institute of Family Welfare refresher course for IAS officers. (h) NAMS - CME programme at Guru Teg Bahadur Hospital, Shahdara, Delhi & (i) AIIMS - Neurology course at AIIMS lecture on immunological aspects of neurological disease.

Prof. Vinod Kumar organised the Scientific programme of VIIIth annual conference of Geriatric Society of India held at Calcutta; gave lectures at Indian Medical Association, Association of Physicians of India, U.P. Chapter, Armed Forces Medical Services, All India Steel Medical Officers Conference, All India Symposium on Biological Medical and Social Gerontology and IVth Conference of Association of Gerontology, India. The subjects included: medical management of thyrotoxicosis, newer insulins and Insulin delivery systems, newer antibiotics, diabetes mellitus,

endocrinopathies in old age and oral hypoglycaemic agents.

Dr. J.P. Wali gave a talk on use of Psychotropic drugs in Medical practice in the national workshop on the Rational use of psychotropic substances; participated in the WHO-GOI Workshop on "Clinical aspects of AIDS" at the AIIMS; Symposium Environment Genetics & Thyroid disorder March, 1989; participated in a GOI-WHO workshop on clinical management of AIDS in March 1989 at AIIMS.

Dr. S.K. Sharma gave a CME lecture on chronic obstructive airway disease in Pulmonary Update at Maulana Azad Medical College & on Bronchoscopy & Bronchoalveolar lavage at Saharanpur - Jan. 1989.

RESEARCH

Research Completed

Studies on the immune response to klebsiella in sero-negative spondarthrititis syndrome (SSA) (HLA B27 related reactive arthropathies)

One hundred patients were studied. Heterogenous response to klebsiella was noted. Abnormal immune reaction against k. pneumonia K43 could be demonstrated in the various sub-groups. In summary, cross reactive determinants on HLA B27 and this pathogen may be involved in the pathogenesis of some subsets of sero-negative spondarthrititis syndrome.

Significance of antibodies to double stranded and single stranded DNA in connective tissue diseases.

A total of 102 patients and 29 controls were studied. A good correlation between single stranded and double stranded DNA antibodies and disease activity index only in cases of systemic lupus erythematosus (SLE) was found. However, significantly higher levels of ds-DNA antibodies were seen in patients with active SLE with renal involvement.

Goitre survey in a north Indian village

A goitre survey was done in Nagla Dalu a village with a population of 749 has 78% as farmers and 85% coming from middle or low income status. 75% are vegetarians and their drinking water comes from well drawn through hand pumps. Survey showed an overall goitre rate of 26% with maximum cases in age group of 6-12 years in males and 13-18 years in females. The visible goitre rate (stage II & III) was 15.8%. There was strong familial concentration of positive cases. Visible goitres were more common in age 18 or less with equal sex ratio which changes to female preponderance after adolescence. All goitres were diffuse except three which showed nodularity. Clinically no case of hypothyroidism or hyperthyroidism was seen.

Thyroid function following head and neck radiotherapy

Short and long term changes in serum T3, T4 and TSH following external radiotherapy were studied in 61 cancer patients of whom 49 had their thyroid gland included in the field of radiations and the data analysed with reference to thyroid hormone levels in a group of 50 control subjects. Whereas at the end of 3-5 weeks of radiotherapy, only T4 showed a reduction, most prominent alterations in thyroid function (low T3 and T4 and raised TSH) occurred only as a long term effect.

Studies on serum histamine and IgE levels in etiopathogenesis of bronchial asthma

The main objective of this study was to establish whether the mast cell activation could proceed in asthma independently of atopic status. Histamine levels in 20 patients with asthma and 5 normal control subjects have been measured by enzymatic single isotope assay technique. The levels of histamine were found to be significantly elevated in patients with an early onset of asthma. Histamine levels were also appreciably high in non-atopic patients of asthma as compared to the normal control subjects.

Thyroid function in ankylostomiasis

Because of associated hypothyroid like features in patients of chronic anaemia with hook worm infestation, 218 anaemic patients with or without hypoproteinaemia, 142 of whom had such worm infestations, were evaluated for clinical features of hypothyroidism and for the blood levels of T3, T4 and TSH. Features of lack of interest, constipation, dry coarse skin, and cold intolerance were present most often in patients of hookworm anaemia with hypoproteinaemia and to a lesser extent even in anaemic patients without worm infestation or protein abnormality. Estimation of thyroid hormone levels revealed only a lowering of serum T3 in anaemic patients irrespective of hookworm disease and protein nutritional status.

Glucocorticoid receptors (GR) in bronchoalveolar lavage cells in idiopathic pulmonary fibrosis IPF and sarcoidosis

G.R. estimation was done in 30 patients with sarcoidosis & 10 patients with I.P.F., G.R. were significantly high in patients with sarcoidosis and low in patients with IPF compared to control subjects.

Alpha-antitrypsin in chronic obstructive airway disease

Levels were estimated in 100 patients. No statistically significant difference was seen between the 2 groups.

Treatment of Kala-azar

In a study of Kala-azar it has been found that there is a necessity of using more than conventional dosage of antimonials in the treatment of Indian disease. Hepatitis like picture in Kala-azar was also found.

Conformational basis of the receptor-binding potency of normal and mutant insulin molecules (Biophys, Med)

A mathematical model for insulin kinetics II. Extension of the model to include response to oral glucose administration and application to insulin -dependent diabetes mellitus (IDDM) (Biophys, Med)

A mathematical model for insulin kinetics in non-insulin dependent diabetes mellitus (NIDDM) (Biophy, Med)

Lymphocyte subsets and HLA antigens in systemic lupus erythematosus (SLE): possible indicators of disease groups (Anat, Med)

Neuropsychiatric manifestations in systemic lupus erythematosus (SLE) (Med, NSC)

Prevalence of gastro-duodenal inflammation, erosion, and ulceration in rheumatoid arthritis(RA) (G.E., Med)

Myocardial involvement in systemic lupus erythematosus (SLE) as assessed by ECHO and MUGA (CTC, Med, Nuc. Med.)

Correlation of clinical and immunological parameters with renal histopathology in patients with systemic lupus erythematosus (SLE) (Med, Path)

Multifactorial determinants of pregnancy outcome in gestational diabetes (GD) and gestational impaired glucose tolerance (GIGT) (Med, Ob & Gyn)

Research Continuing

Correlation of clinical articular indices with acute phase reactant and erythrocyte sedimentation rate (ESR) in patients with rheumatoid arthritis (RA): Three different articular indices are being correlated with ESR and C-reactive protein in patients with RA. Till date, 12 cases have been investigated. The study is in progress.

Prevalence of immunodeficiency in connective tissue diseases

One hundred patients with rheumatoid arthritis, 50 patients with systemic lupus erythematosus, 30 patients with other non-immunological diseases and 100 normal controls have been studied till now. Statistical analysis of the results is under way.

Screening of the high-risk groups for human immunodeficiency virus (HIV):

Results till 31.3.1989.

- (a) Of 115 hemophilia patients screened 9 (7.8%) have been found to be HIV antibody positive. This is the first report of anti-HIV in hemophiliacs in India.
- (b) Of the 1651 paid (professional) blood donors 4 (0.24%) have been found to be positive for anti-HIV.
- (c) Of the 0759 voluntary(unpaid) donors none have been found to be positive till todate at AIIMS.
- (d) Of the 1165 prostitutes screened 1 has been found positive for anti-HIV.
- (e) Of the 4614 STD clinic patients NONE has yet been found to be positive.
- (f) Of the 1262 foreigners or Indians with foreign contact screened 13 (1.0%) have been confirmed positive for anti-HIV antibodies. Another 2266 persons belonging to several other groups have been studied and screened for anti-HIV antibodies. None of these were found to be positive for anti-HIV antibodies.
- (g) A total of 183 blood products manufactured in India were screened for HIV antibodies. 32 of these were confirmed to have anti-HIV antibodies. This work indicated that the blood from

which these products were manufactured were derived from persons infected with HIV.

Summary : In summary 20832 high risk individuals have been screened for the evidence of HIV infection till 31.3.1989. 29 of these were detected to be positive. Of these 8 had clinical disease.

Of the 183 vials of different lots from 5 different manufacturers of blood products in India 32 vials showed evidence of anti-HIV antibodies. This indicated that a significant proportion of the blood products were derived from the blood of persons infected with HIV.

Regional pattern of clinical profile of thyroid disorders

425 thyroid disease patients (330 females, 05 males) attending hospital O.P.D at Delhi, Agra and Aligarh in North India and Madurai in South India were evaluated. Clinically, hyperthyroidism was seen in 30, 38, 43 and 13 of Delhi, Agra, Aligarh and Madurai patients while hypothyroidism was seen in 14, 37, 39 and 56% of cases. Remaining were all euthyroids. Goitre was absent in 24, 37, 42 and 32% of thyroid patients in these centres. When present, it was diffuse in 57, 62, 80 and 87% of goitre cases at Delhi, Agra, Aligarh and Madurai, the rest being nodular. Function wise. 45-70% had diffuse goitre in euthyroid

Goitre survey in Surajpur village of Uttar Pradesh, India

A goitre survey was done in Surajpur, a village from Western part of UP state and about 150 km. from New Delhi. The village has a population of 1014 (548 males and 466 females) & so far 527 subjects have been examined. 66% are farmers and 93% are from middle or low economic status. Majority are vegetarians with drinking water from well drawn through hand-pumps. Survey II and III goitre (visible goitre rate) were

seen in 3.8% only (20 cases - 17 females & 3 males). Age-wise, 12 patients were aged 18 years or less while remaining 8 (all females) were above 18 years. All were diffuse except 3 nodular glands and clinically, no cases of hypothyroidism or hyperthyroidism were seen.

Immunogenetic studies in systemic lupus erythematosus (SLE) (Anat, Med)

In vitro rheumatoid factor (RF) synthesis in genetically predisposed individuals (Anat, Med)

A study of immunological parameters in infective endocarditis (CTC, Med)

Study of lymphocyte subsets and other immunological parameters in rheumatic fever and rheumatic heart disease (RHD) (CTC, Med)

Lupus anticoagulant - clinico-pathological correlates. (Hemat, Med)

D-pencillamine induced polymyositis (PM) in patients with rheumatoid arthritis (RA) (Anat, Med)

HLA studies in idiopathic poly/dermatomyositis (Anat, Med)

Immunogenetic studies in familial rheumatoid arthritis (RA) (Anat, Med)

Immunogenetics of autoimmune thyroid diseases in North India (Anat, Endocrin, Med)

New Research

1. Clinical profile of gout in northern India.
2. Study of efficacy of Salazopyrin as a disease modifying drug in seronegative spondarthritis syndrome.
3. CD5+ve B cells in rheumatoid arthritis.

4. Clq estimation in prognosticating the outcome and severity of RA.
5. Effect of food antigen on immunomodulating cells in RA.
6. Clinical profile of chronic arthritis associated with HLA DR4+B27 haplotype.
7. Diagnostic significance of anti-neutrophil cytoplasmic anti-body (ANCA) in Wegener's granulomatosis.
8. Immunohistochemical studies in poly-dermatomyositis.
9. Screening of high risk obstetric and gynaecological patients for infection with human immunodeficiency virus.
10. Immunological profile in Kala-azar.
11. Correlation of spectrum of infection with immunological profile in immunocompromised host.
12. Characterization of circulating immune complexes in patients with rheumatic chorea, rheumatic fever, rheumatic heart disease with special reference to neuron binding antibodies.
13. Prospective study of D-penicillamine as a disease modifying drug in rheumatoid arthritis.
14. A study of *Campylobacter pylori* in non-ulcer dyspepsia
15. Left ventricular function in chronic obstructive lung disease using MUGA.
16. Phenotyping of leukemia patients using immuno-alkaline phosphatase-anti-alkaline phosphatase staining of hematological samples.

17. Platelet associated immunoglobulin assay and its role in immune thrombocytopenic purpura.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Prof. J.S. Bajaj was appointed Honorary Physician to the President of India. He was the President of the 13th Congress, International Diabetes Federation, held in Sydney, Australia from November, 1988, ; delivered the Lilly Lecture, at Sydney in November, 1988; was the Honorary President, Fourth World Congress on Diabetes in the Tropics and Developing Countries, Dhaka, Bangladesh, February 1988, and delivered the inaugural scientific address; nominated Honorary President of the V World Congress on Diabetes in the Tropics and Developing Countries scheduled to be held in Karachi, Pakistan, in December, 1990; awarded the Fellowship of the Association of Physicians of India and the Indian College of Physicians; served as Hony. Editor in Chief of Bulletin International Diabetes Federation, till November, 1988; has been nominated a member of the Advisory Editorial Board of Diabetes Research and Clinical Practice (Amsterdam) and the Journal of Association of Physicians of India (Bombay), and is the Editor of the Indian Journal of Medical Education.

Prof. A.N. Malaviya gave Madan Mohan Malaviya Oration at BHU March, 1989; has been conferred Fellowship of the National Academy of Sciences in November 1988 and the Fellowship of the Association of Physicians of India in Feb. 1989. He was selected to serve on the editorial board of the Journal of Clinical Immunology, Asia Pacific Journal of Allergy and Immunology and Journal of Association of Physicians of India.

Prof. Vinod Kumar was appointed as a Member to serve on the Board of Faculty of Medicine of Agra University; was invited to be on the scientific advisory committee of the Journal, The Indian Practitioner; became member of the Advisory Committee of National Research Centre on Gerontology, Geriatrics

and Geriatric psychology, Madras; delivered Presidential Oration on Geriatrics in India - Current perspectives, at Calcutta; continued to act as the Chairman Scientific Section of the Geriatric Society of India.

Dr. S.K. Sharma received Saroj Jyoti award consecutively for the second time for best paper in 8th National Congress on Respiratory Diseases at Goa in Jan. 1989.

Significant Events

Prof. J.S. Bajaj acted as temporary adviser to the WHO in the meeting of the WHO Review Group and Toxicology Group in April and September, 1988; elected as honary president for life by the International Diabetes Federation; attended the meeting of Joint IDF/WHO Executive Committee, Sydney, 1988; was elected member of the Executive Board, World Federation for Medical Education and was invited participant in the World Congress on Medical Education, Edinburgh, August, 1988; nominated chairman and moderator of the Working Group on Linkages of Medical Education with Health Care at the Edinburgh Conference; nominated member i) Steering Committee on Health and Family Welfare ii) Group on Medical Education Training and Manpower Planning iii) chairman working group on Non-Communicable diseases and iv) chairman subcommittee on diabetes mellitus by the Planning Commission for the 8th five year plan; served as member Chief Minister's Advisory Committee on Health and Medical Education, Jammu and Kashmir, and of the Expert Committee for establishment of Universities of Health Sciences, Ministry of Health and Family Welfare, Govt. of India; continued to serve as the Chairman, Consultative Group for preparing draft National Policy for Education in Health Sciences, Ministry of Health and Family Welfare, Govt. of India and as the chairman, Clinical Review Group, Indian Council of Medical Research; nominated member, Central Coordinating Committee for Continuing Education in Health Sciences; was faculty invitee, Academic Committee, All India Institute of Medical Sciences; served as member, Selection Committee, PGIMER, Chandigarh. He has served as member Selection

Committee, National Institute of Immunology, New Delhi. Member, Governing Body, Sanjay Gandhi P.G. Instt. of Medical Sciences, Lucknow; member, Board of Management, Indira Gandhi National Open University, New Delhi and member, Governing Body, Indian Institute of Advance Study, Shimla; nominated by the Govt. of India to serve on the Board of Directors of Hindustan Photofilm; elected Council Member, National Academy of Medical Sciences, 1988; elected Vice President, National Academy of Medical Sciences for the triennium 1988-1990; was the President, XXVIII Annual Conference of the Indian Association for the Advancement of Medical Education held at Ludhiana, February, 1989; nominated Vice-President of the National Board of Examinations and Chairman of Medicine and Allied Specialities.

Prof. A.N. Malaviya was invited to be the member of - a) National Committee on AIDS, Government of India. b) Scientific Advisory Committee - Malaria Research Centre, Delhi and Regional Medical Centre (ICMR), Bhubaneswar. c) Selection Committee - ICMR, Delhi, SGPGI-MS, Lucknow, SKIMS, Srinagar and NII, Delhi. d) Panel of experts on AIDS, Central Health Education Bureau, DGHS, Delhi; was a Government of India nominee for a 6 weeks WHO course on 'Clinical management of AIDS' at University of New South Wales, Sydney, Australia; was invited by the Japanese Society of Rheumatology for a guest lecture at the in the SEAPAL area.

Prof. Vinod Kumar was the Chairman of a Scientific session during International Thyroid Symposium at Tokyo, Japan; gave a guest lecture on drug treatment of thyrotoxicosis on the occasion of Golden Jubilee Celebration of S.N. Medical College at Agra; attended as an expert, the meeting by Agra University on introduction of postgraduate diploma courses in different areas of medicine; was a member of Selection Committee for scientists and doctorploma courses in different areas of medicine; was a member of Selection Committee for scientists and doctors at ICMR and Hindustan Fertilizers Corporation; was the Chairman of the Medical Board for medical examination of Junior Residents at AIIMS.

Dr.J.P. Wali has been appointed as a member of (i) Committee to review the list of drugs which figure under category I of the Drugs Price Control Order, 1987 and to examine the suggestion for inclusion of essential drugs into Category II. (2) Committee to suggest the names of diseases to be included under the magic remedies act, under Drug Technical Advisory Board, Ministry of Health & Family Welfare.

Visiting Scientists

Professor Alan Malcolm, Head, Deptt. of Biochemistry, Charing Cross Medical School and Hospital, London who gave a talk on "DNA probes in clinical medicine".

Professor L. Puccinni of Italy gave a talk on "AIDS in Italy".

HOSPITAL SERVICES

The Department of Medicine shared the major load in running the medical out-patient and casualty services of the hospital. The department has continued to provide community service through its staff visiting the Urban Health Centre, Malaviya Nagar and the Rural Health Centre, Ballabhgarh.

Clinical Immunology Services

A total number of 4569 cases have been seen during the year. The clinical immunology lab. performed the following special investigations: rheumatoid factor - 1175, antinuclear- antibody - 1065, dsDNA antibody - 609, antibody to extractable nuclear antigens - 294, CRP - 517, C3 - 581, immunoglobulins - 295, myeloma typing - 12 (Total 4567).

The clinical immunology laboratory has standardized a new test for antibody against neutrophil cytoplasm (ANCA). This test is now being undertaken routinely.

This laboratory is assisting the Blood Bank in 100% screening of each donated blood for AIDS since 1st September, 1988. The laboratory also detected anti-HIV antibody in anti-RH(D) gammaglobulin, leading to intensive surveillance of blood products in the matter.

Respiratory Medicine Services

During the year under review, 4775 patients were seen in the Chest Clinic. The following specialized investigations were done during the year:-

Routine ventilatory pulmonary functions - 1279, DLCO - 600, blood gas analysis - 560, bronchoscopies - 100, body box study - 45 and exercise study - 15.

Haematology Services

This clinic is being held once a week. During the year under review 1250 patients suffering from various haematological disorders have been examined, investigated and managed.

Community Services & Education

Professor J.S. Bajaj was National Coordinator, Community Care and Control of Diabetes Mellitus, launched as a national programme by the Government of India during the seventh five year plan. He prepared educational materials for patients and primary health care providers. These have been translated into Urdu, Hindi and Tamil and are being used in the training programmes in the states of Jammu & Kashmir and Tamil Nadu. He continues to serve the state of Jammu & Kashmir as the Chief Coordinator, Rehbar-i-Sehat programme. Major efforts have been initiated to strengthen the Rehbar-i-Sehat programme, while an alternate model for the organisation and delivery of primary health care series in the remote rural areas of Jammu and Kashmir. Prof. Bajaj also delivered two public lectures on Diabetes Health Care, organised by the Diabetic Association of India, Bombay and the All India Institute of Diabetes, Bombay.

Prof. A.N. Malaviya gave 2 talks on All India Radio on the topic of AIDS. He also participated in 2 sessions of Jan Hai Jahan Hai Doordarshan programme on AIDS. He gave one AIIMS public lecture Know all about AIDS on World day December, 1988. Extensive screening and health education has been carried out in the red light area of Delhi from the stand point of AIDS and HIV infection. After taking Hemophilia Foundation in confidence extensive HIV screening and education regarding AIDS has been carried out among patients with hemophilia.

Prof. Vinod Kumar presented two health programmes on Delhi Doordarshan; gave a lecture on Newer Insulins at the 8th Annual meeting of Diabetic self care foundation at New Delhi and on medical problems of the aged at the Health Education Programme of National Association of Critical Care Medicine at New Delhi.

PUBLICATIONS

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5. Bajaj J.S. Current Concepts: Classification, Pathogenesis, and Diagnosis of Malnutrition-related Diabetes Mellitus. IDF Bulletin. 1988,33:17-21.

6. Bajaj J.S. Partners in Health. IDF Bulletin. 1988,33:51.
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8. Bajaj J.S. Pedagogic Perspectives of Diabetes Health Care in Developing Countries. IDF Bulletin. 1988,33: 58-60.
9. Bajaj, J.S. Medical Education in India (Editorial), National Med. Jour. India. 1988, 1: 55-57.
10. Bajaj J.S. Medical Education in South-East Asia: A Historical Perspective. Ind. Jour. Med. Edn. 1988,27:3-4.
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17. Price G, Laporte R, King H, Bajaj J.S. and Mitrofanov M. Telecommunications, Diabetes and the WHO/IDF. Diab. Res. Clin. Pract. (abstr) 1988, 5, S220.
18. Singh R.R., Misra A, Kapoor S.K., Arora and Malaviya A.N. Inflammatory polyarthrititis as a presenting feature of acute leukemia in an adult. J Assoc Physicians India 1988,36 175-76.
19. Sharma A, Singh R.R., Malaviya A.N. Vocal cord palsy in a patient of systemic lupus erythematosus. J Assoc Physicians India.1988, 36: 674-75.
20. Sharma, S.K., Pande J.N., Guleria J.S. Nifedipine and pulmonary functions in bronchial asthma. J Assoc Phy Ind.1988, 36:350-51.
21. Sharma S.K., Pande J.N. The effect of verapamil inhalation on pulmonary functions in bronchial asthma. (Abstract) Am Rev Respir Dis.1988, 137: AB7.
22. Sharma S.K., Pande J.N. Fiberoptic bronchoscopy. Editorial Ind J Chest Dis & Alli Sci.1988, 30: 163-65.
23. Wali J.P., and Narang R. Role of calcium channel blockers in bronchial asthma. J. Anaesth., Clin Pharmacol.1988, 4:2.

Collaborative publications

17

Chapters in Books

1. Abdella N., AI Yusuf A.R. Bajaj, J.S. Diabetes Mellitus in the Arab World. In: World Book of Diabetes in Practice. Krall LP (Ed), Amsterdam, Elsevier, 1988; 335-340.
2. Bajaj J.S., Subba Rao G. Malnutrition-related Diabetes Mellitus. In: World Book of Diabetes in

Practice. Krall LP (Ed) Amsterdam, Elsevier, 1988; 24-31.

3. Bajaj J.S. IDF-WHO Strategies for Diabetes Prevention, Care and Control: Progress and Future. In: World Book of Diabetes in Practice. Krall LP (Ed. Amsterdam, Elsevier, 1988: 413-419.
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5. Hazra, D.K., Shukla, A.K., Rohtagi R, Singh S, Kulshrestha L, Gupta S.S., Kachlas R.N.L. Srivastava and Kumar V. Thyroid function following head and neck radiotherapy. In: The thyroid, 1988(Eds) S. Nagtaki K. Torizuka, Excerpta Medica, Elsevier Science Publishers B.V., Amsterdam . 1988: 499-501.
6. Kumar V., Hazra D.K., Gupta A, Singh L, Gupta S. Kachlas Suri V., Gopinath P.G., Nair S, Kulshrestha S and Singh S. Profile of thyroid diseases. A hospital experience in India (Delhi and Agra) Libya and Iran. In: The Thyroid (Eds) S. Nagtaki K. Tourizuka, Excerpta Medica, Elsevier Science Publishers B.V., Amsterdam 1988: 301-304.
7. Singh P.N., Hasan B, Ahmed J., Chandra O, Kulshrestha S, and Kumar V. Goitre survey in a north Indian village. In: The Thyroid (Eds) S. Nagataki, K. Torizuka, Excerpta Medica Elsevier Science Publishers B.V. Amsterdam 1988, 297-300.
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Papers presented at scientific meetings 23

Papers accepted for publications 9

Chapter 6.25

NEPHROLOGY

FACULTY

Additional Professor and Head	S.C. Dash
Associate Professor	S.C. Tiwari
Assistant Professor (Adhoc)	S.K. Agrawal

Department of Nephrology was created in June 1988.

EDUCATION

Continuing Medical Education

Department organised a Nephrology Update programme in Dec. 1988.

Dr. S.C. Dash participated in Diabetes' Awareness'88 organised by the Deptt. of Endocrinology & Metabolism & spoke on "Previous & treatment of diabetic nephropathy." and in the practical demonstration on Dialysis and Kidney Transplant Course for the members of Indian College of General Practitioners organised by IMA and AIIMS. He was invited to speak on 'Solute kinetics during peritoneal dialysis' during national seminar on Membrane Science & artificial organs organised by Banaras Hindu University and on 'Acute renal failure' in a Nephrology Update organised by Sanjay Gandhi Post Graduate Institute of Medical Science, Lucknow.

Deptt. of Nephrology trained on short term basis, 12 doctors, 15 nurses and 8 technicians coming from

hospitals and medical institutions at Kathmandu, BHU, Tripura, Goa, Gorakhpur, Gwalior & Hindu Rao Hospital, Delhi.

RESEARCH

Research Completed

Bicarbonate hemodialysis system

Fifty patients of ESRD with cardiovascular instability were treated by an indigenised method of bicarbonate dialysis system. The primary dialysis bath consisted of NaCl. & Na. HCo₃ and the patients were infused by a cocktail of MgCl₂, KCl and CaCl₂, solution. Rate of infusion was precalculated on the basis of rate of loss during dialysis. Patients had a significant reduction in intradialytic hypotensive spells, cardiac arrhythmias & vomiting, compared to those occurring during acetate dialysis.

Iatrogenic renal failure

Prospective study of 500 consecutive referred cases of chronic renal insufficiency revealed that in about 45% , decline in renal function occurred due to faulty antihypertensive treatment which included indiscriminate use of captopril and extreme sodium restriction compounded by use of powerful loop diuretics. Injudicious use of Gentamycin & other aminoglycosides, nonsteroidal anti-inflammatory drugs and radio-contrast induced renal failure were seen in majority of elderly diabetic patients. Renal function improved in 85% of these patients by rational treatment & dialytic support. It was interesting to note that most of these patients were treated by specialists in hospitals.

Bolus methyl prednisolone in rapidly progressive crescentic glomerulonephritis

Seventeen consecutive cases of rapidly progressive crescentic glomerulonephritis with cellular

crescents and severe renal failure were treated by intravenous bolous prednisolone treatment alone. Results were monitored by record of urine volume, blood urea nitrogen & creatinine clearance. These were compared with the results of quadriple, regime treatment, devised by our Unit earlier. It revealed bolus intravenous prednisolone alone is equally effective in immediate reversal of renal impairment.

Pattern of diabetic nephropathy in non-insulin dependent diabetes millitus as seen in a renal unit in India.

Study of 169 cases of NIDDM with diabetic nephropathy revealed mean duration of diabetes at the onset of clinical proteinuria to be 10.1 years. Degree of proteinuria was usually moderate to severe. Variable degree of renal failure was seen in 94% cases. Hypertension was present in 76.3% cases and was usually mild to moderate. Patient with severe hypertension developed clinical proteinuria and renal failure earlier as compared to cases with mild and moderate hypertension. Correlation between matabolic control of diabetes, onset of clinical proteinuria and onset of renal failure was not good. Diabetic retinopathy was seen in 39.5% cases.

Comparative study of glomerulonephritis in aduts & children (Neph, Path)

Vestibular functions in conservatively treated chronic renal failure (Neph, Otorhino)

Abnormalities of auditory function in patients of conservatively treated chronic renal failure (Neph, Otorhino)

Research Continuing

Prevalence of renal diseases in India

In collaboration with 60 medical colleges &

Nephrology Units a prospective study is on way to map out the magnitude, etiologic profile and severity of renal diseases in India. Results have not been analysed as yet.

Chronic ambulatory peritoneal dialysis(CAPD)

Indigenisation of CAPD bags and catheters is in progress. This is required to start CAPD in an organised way for the first time in India. CAPD is an alternative treatment to hemodialysis & kidney transplantation. Presently these CAPD bags are to be imported, cost of which is prohibitive.

Natriuretic factor in normal controls of two ethnic groups & in relatives of patients with essential Hypertension

Dopamine can be a natriuretic factor which is being measured by RIA to study the difference between English & Indian healthy controls following salt loading. The same is being studied in the urine of relatives of patients with essential hypertension.

Complications of captopril in chronic renal insufficiency

Use of captopril in hypertension is presently a very common practice. Many of these hypertensives have a critical creatinine clearance, If captopril is continued without discretion hyperkalemia is precipitated. This was found in our earlier study. The problem is particularly common in diabetics. It should be used with caution in patients with impaired renal function, solitary kidney and renal artery stenosis.

Prevalence of microalbuminuria in Indian diabetics & its correlation with diabetic retinopathy.(Endocrin, Neph, RPC)

Immuno phenotyping, histologic and clinical correlation in acute renal allograft rejection.(Anat, Neph, Path)

New Research

1. Study of cardiac performance following hemodialysis as evaluated by Echocardiogram & MUGA test.
2. A serologic and immuno histologic study of hepatitis B virus associated glomerulonephritis.
3. Holter mointoring during hemodialysis.
4. Preventing progression of renal failure.
5. Designing of slow continuous hemodialysis.
6. Evaluation of plasma exchange and fibrinolytic therapy in fulminating crescentic glomerulonephritis.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. S.C. Dash was appointed a member of the Editorial Board of the National Council of Hypertension.

Membership of the Indian society of Membrane Sciences & Artificial Organs and that of the Asian Pacific Society of Nephrology were conferred on Dr. Dash.

Significant Events

Dr. S.C. Dash was deputed by Govt. of India under Indo-Nepal friendship treaty and visited Bir Hospital as an expert to set up hemodialysis and supervise the Nephrology Deptt. in that Hospital.

Visiting Scientists

Dr. George Dunea, Professor of Nephrology from

University of Illinois, Chicago USA gave a talk on causes and etiopathogenesis of renal failure.

Paul Terassaki from UCLA, Los Angeles' USA Professor of Transplant Immunology spoke on "Factors of importance in kidney transplantation".

HOSPITAL SERVICES

2633 hemodialysis and 450 peritoneal dialysis were done during the year.

Renal Transplantation

A total of 42 cases and their donors were investigated and prepared for renal transplantation.

Art-venous Shunts & Fistulae

105 cases of AV shunts and 2 AV fistulae were made in the department.

Femoral artery and subclavian vein catheterisation for hemodialysis

452 cases were dialysed by the above technique.

Renal Clinic

A total of 4929 patients were seen during the year.

Renal Transplant Clinic

Besides our own patients a number of patients transplanted elsewhere are on our regular followup needing monitoring of graft function and medical advice. A total of 1184 cases have been seen during the year.

Laboratory

A total of 224 renal biopsies were conducted and 23917 investigations done in renal laboratory.

PUBLICATIONS

1. Dash S.C. Diabetic nephropathy: Diabetes Bulletin
1989 ; 8, 12-17.

Collaborative publications	3
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Papers presented at scientific meetings	5
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Papers accepted for publication	12
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Chapter 6.26

NEUROSCIENCES CENTRE

Chief

P. N. Tandon

Neuro-anaesthesiology

Professor

S.S.Saini

Associate Professor

H.H. Dash

Assistant Professor

P.K. Bithal

Neuro-biochemistry

Additional Professor
Neurology

B.L. Jaikhani

Professor and Head
Professor

M.C.Maheshwari

Professor Emeritus

G.K.Ahuja

Associate Professor

Baldev Singh

Assistant Professors

M. Behari

A.K. Verma

S. Jain

K. Prasad

Neuro-pathology

Professor

S. Roy

Assistant Professor

C. Sarkar

(Inputs to Pathology deptt.)

Neuro-psychiatry

Associate Professors

S.K. Khandelwal

S. Gupta

(Inputs to Psychiatry deptt.)

Neuro-radiology

Professor	P.K.Goulatia
Associate Professor	N.K. Misra
Assistant Professor	A.N.Khosla

Neuro-surgery

Professor and Head	P.N.Tandon
Professors	A.K. Banerji
	R. Bhatia
Associate Professor	V.S.Mehta
Assistant Professors	A.K.Mahapatra
	S. Bhatia

Prof. P.N. Tandon is on extension for two years as Professor. Prof. A.K. Bannerji took over as Head of the department of Neurosurgery and Chief Neurosciences Centre from 1.9.88. Dr. S.Bhatia joined as Assist Professor on 2.5.88.

EDUCATION

Two Medical students from U.K. joined the Neurology department for their elective posting for six weeks.

Technicians & nurses from various centres in India and Nepal attended clinical neurophysiology unit & intensive care unit for training and experience.

Continuing Medical Education

Dr. G.K.Ahuja chaired a session on epilepsy in the International Paediatrics Update at AIIMS; Lecture on Multiple Sclerosis: Clinical aspects at the DST sponsored course in Neurobiology for postgraduates in clinical neurosciences; Moderated a panel discussion on headache at IMA course for general practitioners; A talk on 'diabetic neuropathy' at the IMA academy on 'current concepts of management of cerebro-vascular diseases at medical college Jaipur; gave talks on

'Myasthenia gravis' and 'management of stroke' at Medicine update at RNT Medical College, Udaipur; 'Recent advances in treatment of stroke' at CME organised by API, Meerut; 'Personnel and equipment requirements for Neurology services - secondary and tertiary level' at the Hospital Administration at AIIMS; Ischaemic Stroke - management of strokes at Medicine Update at Maulana Azad Medical College, New Delhi.

Dr. A.K. Banerji delivered the theme address and gave a lecture in the national conference of Biomechanics 'Clinical intracranial pressure monitoring'; Neurology Update AIIMS lecture on 'Subarachnoid haemorrhage'; At the Neurology Update at Maulana Azad Medical College, Delhi on 'Subarachnoid haemorrhage'; On 'Requirement of a Neurosurgical Unit' at the Hospital Administration Update, AIIMS; Invited lecture at meeting of the Eastern India Branch of the Neurological Society, Calcutta, on 'Neurosurgery today'.

Dr M.Behari gave a lecture in the Medicine Update organised by Maulana Azad Medical College; Invited speaker in the Neurology Update organised by G.B. Pant Hospital; participated in the course on Administrative procedures conducted by Institute of Technology and Management System; Invited on the panel discussion on headache organised by IMA College of general practitioners.

Dr. R. Bhatia gave lectures on 'Pathophysiology and pharmacotherapy of cerebral vasospasm' at the II national course in Neurology in Nov.1988 at the AIIMS; conducted the symposium on management of Proptosis at RAPCOS, AIIMS; organised and chaired the Symposium on 'Frontiers in Neuroimaging' at the annual conference of the Neurological Society of India at Chandigarh, December 1988.

Dr R.K. Goulatia gave guest lectures on; i) CT in head trauma ii) Mass lesions in and around sella in the CME programme on Update Imaging organized by Medical College, Jammu. iii) on Pediatric

Neuroradiology in the CME programme, Banaras Hindu University, iv) 'Radiology in Forensic Medicine', at Institute of Criminology and Forensic Sciences, v) 'Radiology Services' in the 42nd course on Hospital Administration at National Institute of Health & Family Welfare, New Delhi. vi) Radiology in Forensic Medicine at 8th Course on Orientation to Forensic Medicine. vii) 'Meeting requirement of Radiodiagnostics in Neurology & Neurosurgical Centre' in the Hospital Administration Update, Planning Establishment and Maintenance of Speciality Services at AIIMS. viii) Attended the fifth annual conference cum Workshop on pain and chaired the session 'Imaging in pain management' under the joint auspices of Indian Society for Pain Research and Therapy and Indian Society for Pain.

Mr. S Gupta participated in a seminar on Neurobiology of higher nervous activity at AIIMS; Gave a lecture on Psychological impairments associated with frontal lobes at Lady Shree-Ram College for women New Delhi.

Dr. B.L.Jailkhani gave lectures on 'Neurotransmitters and Neuro-modulators' and 'Elisa in diagnosis' at the DST sponsored course of Neurobiology for postgraduates in Clinical Neurosciences held at AIIMS. He was also co-convenor and invited speaker in the symposium on Neurobiology held under the auspices of Society of Biological Chemists.

Dr.S.Jain gave a lecture on 'Convulsive disorders' in a CME organised by IMA Delhi north zone branch; Participated in the workshop organised by National Board of Examinations; gave an invited lecture on 'Epidemiological studies on stroke' in a seminar on Stroke at University College of Medical Sciences, New Delhi; lecture on management of cerebrovascular diseases in the symposium on Management of Cerebrovascular and peripheral vascular diseases organised by IMA Delhi North Zone Branch. Gave a talk on Multiple Sclerosis in the Neurology update organised by G.B.Pant Hospital, New Delhi.

Dr S.K. Khandelwal gave a talk on 'Role of clinical psychologists in the mental health development in India' to the Association of Clinical Psychologists Delhi and another talk on 'Psychiatric terminology' at the National Medical Library.

Dr. Anil Khosla was joint organising secretary of the CME programme on Radiology of Orbit, Paranasal Sinuses & Ear', organised under the aegis of the Indian College of Radiology in which he spoke on 'Normal radiographic and CT anatomy of orbit', AIIMS in Oct, 1988. ii) Attended workshop on 'Biological applications of MRI' at TIFR Bombay. iii) Papers presented at Indian Radiological Congress held at Calcutta in Jan., 1989 (a) DSA in Neuroangiography. (b) CT in Isodense SDH.

Dr A.K. Mahapatra delivered CME programme lecture on i) 'visual evoked potential in neurological disorders' at II Course in Neurobiology at the AIIMS. ii) 'Intensive care management of head injury and other neurosurgical emergencies' at the refresher course for In-service Nurses AIIMS; iii) Optic nerve injuries in the annual conference of Neurological Society of India, Chandigarh, Dec. 1988.

Dr. M.C. Maheshwari: lecture during the National refresher course organised by IMA, Kanpur branch. Guest lecture on 'Neurological aspects of alcohol abuse' in a seminar on Alcohol Abuse; Problems and policies, organised by Sumitra Singhania Hospital and AIIMS. lecture on Conduction velocities on human nerve trunk and peripheral neuropathy in the Neurobiology course. Spoke on Principles of antiepileptic drug therapy in the CME programme of IMA, Meerut Medical College. Participated and chaired the session in the Neurosciences Update organized by Sir Ganga Ram Hospital, Delhi; Spoke on CNS tuberculosis in Medicine Update organised at Maulana Azad Medical College, Delhi. Invited by the Rotarians, South Delhi to talk on epilepsy; gave a talk on drug management of seizures Neurology Update organised by G.B. Pant Hospital, New Delhi, Contributed a series of three articles on Neurological illnesses for the Employment News Magazine.

Dr. V.S.Mehta has continued to run the microsurgical training programme. 9 consultant neurosurgeons from various parts of the country attended the course.; delivered CME programme lectures on i) Management of peripheral nerve injuries at SMS Medical College, Jaipur. ii) Neurosurgical management of proptosis in the workshop on Orbit at R.P.Centre. iii) 'Day care surgery' in the workshop on Hospital Administration update at AIIMS. iv) 'Injection nerve injuries' in the annual Conference of the Neurological Society of India at Chandigarh, December 1988.

Dr N.K.Mishra organised on 'International symposium on Magnetic Resonance Imaging' - Present Issues & Future Challenges', at the AIIMS, New Delhi, 30 foreign participants and over 200 Indian delegates from the radiologic and imaging community participated; gave lectures on 'computed tomography of the temporal bone' during the CME programme of the Indian College of Radiology and Imaging, at AIIMS; 'Role of CT scan in parapharyngeal space tumours - during the 'Advanced Course on surgery of Cancers of the Oral cavity, Oropharynx and the Salivary gland'. organised by the Deptt. of Otolaryngology, AIIMS.; 'Digital subtraction Neuroangiography' in the symposium on 'Frontiers in Neuro-imaging' held at PGI Chandigarh, during the annual congress of Neurological Society of India,; 'High resolution CT of temporal bone' during the silver Jubilee cerebration of the M.K.C.G. Medical College, Berhampur.

Dr. K. Prasad gave a lecture 'A clinical approach to Neurological emergencies' at All India Coal Doctor's conference held in Dhanbad.; lecture on 'Neuro-immunomodulation : an overview of clinical neuroimmunology' and 'Immunopathology of multiple sclerosis'. in the DST sponsored Neurobiology course for postgraduates in clinical neurosciences; lecture on 'Acute meningitis and encephalitis in the Medicine Update organised by Maulana Azad Medical College.; lecture on Pseudoseizures in the Neurology Update organised by G.B. Pant Hospital. Participated in the 'Cost-containing issues in speciality services'

organised by Hospital Administration of AIIMS.; Lecture on management of common neurological problems in Central Hospital, Dhanbad.; Invited to do a CPC in Indo-US diabetes conference organised by the department of Endocrinology, AIIMS.; Attended a Government of India WHO workshop on clinical management of AIDS.; Participated in the NCERT sponsored workshop on vocationalisation of education held in Goa.

Dr. S. Roy i) Participated as faculty in the second course in Neurobiology for postgraduates in clinical Neurosciences.; chaired a seminar on 'Cerebral edema' and spoke on 'Pathogenesis and pathology of brain edema'.; took a lecture and demonstration on 'the use of electron microscopy in diseases of the nervous system'.; participated in the Indo-Soviet symposium on Developmental Neurobiology and Neural Transplant in which he gave lecture on 'Effect of neonatal undernutrition on neuromuscular system'.

Dr. S.S.Saini gave the following CME programme lectures i) 'cerebral protection during and following ischemic insults' - 2nd Neurobiology workshop sponsored by DST at AIIMS. ii) 'Hypotensive anaesthesia recent advances' at symposium on Recent Advances in Anaesthesiology PGI, Chandigarh. iii) 'Organisation of intensive respiratory care units' 28th annual conference of National College of Chest-Physicians. iv) 'Local/regional anaesthesia for surgeons' instructional course lecture at annual conference of Association of Surgeons of India. v) Organisational aspects of Neuro-Sciences ICU' Hospital Administration Update, AIIMS. vi) 'Use of psycotropic drugs in anaesthetic practice ' at national workshop on rational use of psycotropic substances. vii) Transcutaneous nerve stimulation in the treatment of pain and 'Role of imaging techniques in the management of chronic intractable pain' - annual conference of ISPRAT. viii)'Principles of management of chronic pain' Pain symposium organised by IMA South Delhi.

Dr Chitra Sarkar participated as a faculty in the second course in Neurobiology for postgraduates in clinical Neurosciences and spoke on 'Pathology and

pathogenesis of neuroendocrine tumors'. She also took a lecture and demonstration on 'The use of immunohistochemistry in diseases of the nervous system'; participated in the Indo-Soviet symposium on Developmental Neurobiology and Neural Transplant and spoke on 'effect of Neonatal undernutrition on the brain'.; was invited by the Indian Academy of Sciences to give a lecture on 'Recent advances in Neuro-Oncology' at their annual meeting held at Calcutta.

Dr. P.N.Tandon was the Course Coordinator of the II National Course in Neurobiology in Nov.1988 held at AIIMS, sponsored by the Department of Sciences & Technology. He delivered lectures at the following CME programmes: i) Neurology Update AIIMS October 1988 on 'Acute Cranio-Cerebral trauma' ii) At the Institute of Medical Sciences BHU, Varanasi a) Lecture on 'Perspective in medical research in India', b) Symposium on head injury, lecture on 'Recent advances in management of head injuries'.

Dr. Guru-Singhe from Srilanka came for training in Neuropathology for a week.

Department of Neurology organised a symposium on Neurological Emergencies supported by DST and NAMS. 106 delegates from the country attended. The proceedings of the symposium were published.

RESEARCH

Research Completed

Study of biogenic amines in epilepsy (Neurology)

In the previous year it was shown that the urinary VMA levels in epileptic patients was significantly higher than the controls and not affected by duration of the disease or treatment. The status of urinary metabolites of other biogenic amine neurotransmitters e.g. dopamine and serotonin was evaluated. The levels of HVA, (control = 3.6 ± 0.6 ug/ml; epilepsy = 2.3 ± 0.4) and of HIAA (control = 3.4 ± 0.6 ug/ml; epilepsy = 2.8 ± 0.3) were not significantly altered in epileptic

patients.

Study on tissue receptors and metabolic effects of phenytoin: (Neurology)

In the earlier studies, chronic treatment of rats with phenytoin was observed to cause an increase in body weight, appearance of 11 OKD protein in liver homogenates, an increase in an 89KD liver protein and 34KD spleen protein; and a persistent decline in total brain RNA content. In vivo labelling with H-leucine & H-uridine was carried out to assess the effects on rates of protein and RNA synthesis. A decrease in the labelling of RNA in brain, but not in other tissues was observed, which would be consistent with the observed decrease in net RNA in this tissue. The spleen RNA showed an enhanced labelling. There was no significant alteration in lens macromolecules on treatment with phenytoin.

A randomized trial of short-term versus conventional Treatment of adults with meningococcal meningitis: (Neurology)

Forty consecutive patients of meningococcal meningitis were randomized into five days versus ten days treatment with I.V. crystalline penicillin. The mortality CSF parameter and neurological sequelae were compared in the two groups. It was found that there is no significant difference in ultimate outcome of the two treatment regimes in adults with meningococcal meningitis. It is concluded that in adults with meningococcal meningitis, five day treatment is as effective and more economical than ten day treatment with I.V. crystalline penicillin.

Follow up study of forceps and normal delivery in the pathogenesis of epilepsy: (Neurology)

381 forceps cases and 372 normal delivery cases (total 735) were followed up for 4 to 7 years. 22 children from the forceps group and 10 out of normal delivery group developed some sort of seizure. These children received further follow up for studying the

seizure pattern.

Pathology and morphological analysis of sciatic nerve in experimental animals using quantitative morphometry after injection of anhydrous glycerol. (Neurosurg. Neuropath)

Morphometric analysis of fibre type distribution showed maximal involvement of the fibres in the larger than 12 micron group (A alpha). There was a significant reduction in the number of this fibre type noted from day 3 onwards. The fibre group of 6-12 micron diameter (A-beta, A-gamma) were also significantly reduced from day 3 onwards; but the degree of reduction was much less when compared to A-alpha type fibres. A proportionate increase of C, and A-delta fibres (0-6 microns), was noted as a result of substantial reduction of the two groups. This specific pattern has clinical correlation with percutaneous trigeminal ganglion injection using glycerol.

Clinico-pathological study of intracranial mixed gliomas (Neurosurg. Neuropath)

Among 1667 consecutive patients with intracranial gliomas, 128 patients had on histological examination 'mixed gliomas'. Only 20% of them were deemed to have malignant features. Follow up evaluation on 82 patients suggested that they had a better long term survival compared to malignant astrocytomas or gemistocytic astrocytomas.

Post-traumatic brainstem hematoma (Neurosurgery)

A series of 48 patients were prospectively analysed and 28 survived. Fifty percent of the survivors had a good recovery on long term follow up.

A study of prolapsed lumbar intervertebral disc correlation of clinical investigative & operative findings (Neuroradiol. Neurosurg)

30 patients of suspected lumbar prolapsed

intervertebral disc, were selected for inclusion in this study based on strict clinical criteria. All the cases were studied prospectively by a meticulous clinical examination followed by CT scanning in all cases and if required , myelography (7 cases). All these patients were then operated. CT scanning is an accurate, (90% sensitivity as correlated to surgery) non-invasive method of imaging in cases of prolapsed intervertebral disc. CT scan should ideally be done as close to the date of surgery as possible. Long intervals between date of CT scanning and surgical exploration may cause fallacies in diagnosis. CT combined with myelography in 7 cases was more useful to predict the correct diagnosis , when CT alone did not correlate well with clinical findings.

An evaluation of the role of ultrasonic image & cranial computed tomography in infants with suspected cranial pathology (Neuroradiol)

Eighty five children with suspected intracranial disease, ranging from new born to 4 1/2 years of age, having a patent fontanelle were prospectively evaluated with cranial ultrasonography and cranial computed tomography. The final diagnosis was established by (a) clinical outcome (b) surgery and histopathology where possible (c) laboratory data (pus, CSF analysis) and (d) additional radiological investigations where indicated. A wide variety of congenital , vascular, infective and tumourous conditions were identified. It was concluded that both cranial CT and US are extremely valuable in the evaluation of these disorders offering comparable anatomic information but CT was found to be more precise in defining the pathological nature and extent of disease.

Immunoelectron microscopy and culture of pituitary adenomas. (NSC, Endocrin)

Corpora amylacea: An immunohistochemical, ultrastructural, immunoelectron microscopic and morphometric study (NSC, Path)

Analysis of childhood tumors with special reference to

tumors of neural crest origin (NSC, Path)

Ultrastructural study of blood vessels in localized chronic infections: Their relationship to cerebral edema (NSC, Path)

Optic nerve injuries (NSC, ENT)

Pressure - volume response of the cranial and craniospinal CSF space in dogs (NSC, Biomed Eng)

Research Continuing

Elisa for antibodies in diagnosis of CNS cysticercosis (Neurol):

About 600 coded samples of serum and CSF were screened for anticysticercus antibodies by the ELISA developed previously. The test was shown to give consistent values with a given antigen on storage at -20 C over one year period; the IgG type antibodies were also stable for that long. Several patients of neurocysticercosis have been treated with praziquantel (n=39); their pre and post treatment samples are collected for analysis of antibody profiles.

Comparative study of antigenic profiles of different morphological parts of cysticerci: (Neurol):

Earlier it had been seen that the antigenic extracts from scolex, membranes and whole cysts gave identical SDS-PAGE profiles which were qualitatively different from that of vesicular fluid profiles. The extracts from whole cyst and cystic fluid were fractionated on sephacryl S200 columns. The 280 nm O.D. and Elisa reactivity of each fraction showed that immuno-reactivity of the antigens is spread over high molecular weight (i.e. 120 to 60KD) as well as low M.W. (i.e. 40 to 16KD) fractions though on the basis of protein content the latter gave higher reactivity.

Immunological & immunogenetic aspects of multiple

sclerosis (MS) patients in India (Neurol):

Sixty per cent of clinically proved and 30% of probable MS patients showed a decrease in CD8 populations compared to controls; the CD4/CD8 ratio in the patients was also altered.

Disappearing CT lesions in epilepsy: Immunological studies (Neurol):

A systemic study is being carried out to ascertain the aetiology of these lesions which are peculiar to this country. The patients are being studied with special reference to tuberculosis and cysticercosis using immunodiagnostic techniques. Over 50 patients have been studied so far. Preliminary results show that cysticercosis may be an important aetiological factor.

A clinical trial of flunarazine as prophylaxis of migraine (Neurol):

A double blind placebo controlled, cross-over trial to ascertain the efficacy of flunarazine - a calcium channel blocking agent is under progress. Twenty-nine patients have been entered in the study.

Short term stay in Neurosurgery (Neurosurg)

For a select group of neurosurgical patients it has continued. Patients were operated under general anaesthesia and included nerve injuries, lumbar and cervical disc syndromes, and pituitary tumours. There were 80 patients over a 15 month period where the total duration of hospital stay did not exceed 48 hours.

Evaluation of brachial plexus injuries with magnetic resonance imaging. (Neurosurg. INMAS)

This study carried out in collaboration with the INMAS has included 11 patients todate. This has enabled us to diagnose injuries which were confirmed at operation. This was hitherto not possible by either myelography or CT imaging.

Endoscopic fulgration of choroid plexus as a method of treatment of congenital hydrocephalus

Four cases have been operated upon successfully by this technique.

Study of SEP in atlantoaxial dislocations prior to and following corrective surgery (Neurosurg).

A total of 26 patients have been prospectively analysed for N11-N13 and N-19 latencies on the basis of which a rational surgical procedure has been outlined.

Comparative evaluation of different monitoring methods for detection of venous air embolism (VAE) during Neurosurgery in sitting position. A prospective study (Neuroanaesth)

So far we have studied 72 patients of both sexes, age ranging from 4 to 70 years. All the patients were operated in sitting position for various neurosurgical problems. Continuous monitoring of end-tidal Co₂, HR, arterial pressure, airway pressure, were carried out during anaesthesia. From this preliminary study we conclude that end-tidal Co₂ monitoring is a better predictor of VAE than other monitoring modalities.

"CT of sellar and juxta sellar lesions "(Neuroradiol)

24 patients suspected to have sellar and juxta sellar lesions , have been studied so far. Contrast enhanced CT scans in coronal plain and plain X-ray were performed in each patient. The clinical findings were correlated with the radiological data. Histopathologic comparison was made in cases who had undergone surgery.

It was observed that the majority of the patients had chromophobe adenomas of the pituitary. One case had craniopharyngioma and one was of temporal lobe tumour. In 4 patients, histological correlations could not be obtained , of whom one was a case of pituitary microadenoma on medical treatment and the other three refused surgery.

"CT of parapharyngeal space tumours" (Neuroradiol):

Study of 20 parapharyngeal space masses by CT was undertaken. CT has been most useful in determining the extent of the lesion including bony changes. Parotid and extra parotid masses have been correctly differentiated in all cases, and in a case of carotid tumour CT has been useful to demonstrate involvement of deep lobe. Of the 12 cases 4 have been neurogenic tumours, in all of which a diagnosis of benign tumour with neurofibroma as the most probable diagnosis was made. Of the 3 cases reported as malignancies, 2 were poorly differentiated and in one case inflammatory changes were seen. A case of carotid body tumour was correctly diagnosed. The other cases have been an unusual plasmacytoma hyoid bone, metastatic nodes and a branchial cyst.

"The development of a neuro-psychological battery for use on Hindi knowing patients" (Neuropsychiatry).

The objectives of the study are (a) to construct and develop a neuropsychological test battery in Hindi and to examine its efficiency in differentiating the patients with brain damage from schizophrenic patients and from normal control patients and (b) to examine if this neuropsychological test battery would discriminate between individuals with lateralized brain damage.

Clinico-pathological analysis of cases of polymyositis and dermatomyositis. (Neuropath, Neurol).

Histological sections from muscle biopsy specimens of thirty cases of myositis (both polymyositis and dermatomyositis) have already been reviewed with special reference to the degree of inflammation, and presence or absence of vasculitis. The histological findings are now being correlated with the clinical presentation, the progression of the disease and the serum CPK levels.

Study of experimental cerebral malaria with particular

reference to blood brain barrier and platelet function (Neuropath)

Plasmodium knowlesi was injected into 4 monkeys and they were sacrificed on the first, third, fifth and seventh day of parasitaemia. Normal monkey brain was used as control. The brain is being examined by light and electron microscopy. Fresh tissue is being collected for alkaline phosphatase stain. Attempts are being made to standardize the techniques of horse-radish peroxidase and ruthenium red localization at ultrastructural level.

Study of juvenile motor neuron disease (Neuropath)

The technique of enzyme histochemistry for myosin ATPase and NADH-Tr has been standardized on snap frozen muscle biopsies. These are being done on cases of juvenile and adult motor neuron disease. The results have to be analyzed and correlated with clinical parameters after more cases are studied.

Autonomic dysfunction in hereditary ataxias (NSC, Physiol):

Incidence of mitral valve prolapse (MVPS) in migraine (CTC, NSC)

Incidence of patent foramen ovale in stroke in Young (CTC, NSC):

Characterization of circulating immune-complexes in patients with rheumatic fever, rheumatic chorea and rheumatic heart disease with special reference to neurone-binding antibodies : (CTC, NSC)

A prospective study of nervous system involvement in patients with systemic lupus erythematosus : (NSC, Med.)

Pharmacological intervention in neurogenic pulmonary edema . An experimental study of hemodynamic and biochemical profile : (NSC, Pharmacol)

Neuroepidemiology (NSC, Com. Med.)

Cardiovascular abnormalities in severe head injury patients: (NSC, CTC)

Study of experimentally produced brain abscesses by stereotactic implantation of an infected inoculum. (NSC, Microbiol).

Neural transplant in mammals (NSC, Anatomy)

"Role of CT scan in unilateral sensorineural (SN) hearing" (NSC, Otorhino)

The role of CT scan in endolymphatic sac surgery (NSC, Otorhino)

Cell proliferation kinetic pattern of brain tumors: An in-vitro study (NSC, Path)

Cell kinetics and vascular changes in human brain tumours: An in-vivo study (NSC, Path)

New Research

1. Dopamine metabolism in Parkinsons disease
2. CSF immunoglobulin index in neurological disorders
3. Immunological cross reactivity between antigens of tubercle bacilli & cysticerci.
4. CSF pharmacokinetics of antitubercular drugs in patients with tuberculous meningitis
5. Immunological profile of patients with tuberculous meningitis and its clinical significance
6. Experimental study on changes in the vessel endothelium secondary to intravascular injection of radiographic contrast material
7. A clinico-histological analysis of posterior fossa

medulloblastomas in children

8. Study of gross and histological changes in the oculomotor nerve in patients dying of head injuries
9. Non-invasive cerebrovascular examination with the use of multifrequency transcranial doppler system for patients with subarachnoid haemorrhage.
10. C.T. guided stereotactic procedure using the new Leksell CT and HR compatible frame, coupled to the Shimadzu CT Scanner, at the IRCH Hospital
11. Prospective study of SEP in patients with syringomyelia and its correlation with the clinical improvement
12. Study of autologous blood transfusion in over 100 neuro-surgical patients who underwent elective surgery over the last 8 months.
13. Study of anti-malarial antibodies in 200 healthy blood donors coming to the blood bank.
14. Development of a neuropsychological battery for use on Hindi knowing patients
15. The effect of Bupivacaine scalp infiltration on the hemodynamic response to craniotomy under general anaesthesia
16. CT evaluation with clinical correlation of pituitary adenoma pre and post radiotherapy treatment
17. CT evaluation of pre and post radiotherapy treatment of cranio-pharyngioma
18. Mixed glioma -CT histopathological correlation.
19. Neurocysticercosis CT morphology before and after praziquantel therapy

20. Haemodynamic response to withdrawal of sodium nitro-prusside with and without propranolol pretreatment.
21. Enzyme histochemistry and T cell markers in inflammatory muscle disorders and muscular dystrophy

AWARDS AND EVENTS

Distinctions, Awards, Honour

Dr.R.K.Goulatia gave the Sir Jagdish Chandra Bose Memorial Oration for the year 1989 on "Neuro-Imaging in Pediatrics" at 42nd annual congress of Indian Radiological and Imaging Association.

Dr.S.K. Khandelwal was conferred individual membership diploma by the World Psychiatric Association for Human Relations Training , New York.

Dr.A.K.Mahapatra has been conferred membership of National Academy of Medical Sciences of India.

Dr.Subimal Roy was conferred membership of the National Academy of Sciences.

Dr. P.N. Tandon was awarded the Padma Bhushan by the President of India.

Significant Events

Dr G.K.Ahuja as treasurer was involved with 14th World Congress of Neurology.

Dr. A.K.Banerji is the organizing secretary of the International Congress of Neurosurgery. Dr. R. Bhatia is assisting him as part of the organising committee and as an assistant treasurer.

Dr. A.K.Banerji, Dr. G.K.Ahuja and Dr R.K.Goulatia nominated as experts in Neurosurgery, Neurology and Radiodiagnosis on Board of Studies at Sanjay Gandhi

Postgraduate Institute of Medical Sciences, Lucknow.

Dr. A.K.Banerji was elected as the Vice President of the Neurological Society of India at the Annual meeting of the NSI at Chandigarh in December, 1988.

Dr. R. Bhatia was invited as a guest speaker at the 1st meeting of the Pakistan Society of Neurosurgeons at Karachi and Lahore and for a guest lecture at the 25th anniversary of the Jinnah Postgraduate Medical Centre at Karachi, in December 1988.

Dr Satish Jain and Dr Ashok Verma Assistant Secretaries were involved with 18th International Epilepsy Congress.

Dr M.C.Maheshwari as Secretary-General was involved with 18th International Epilepsy Congress and was Visiting Professor in Neurology at JIPMER, Pondicherry December 1988. Participated in the international congress for Scientific Culture at Erice, Sicily, Italy, February 1989 and Co-chaired a session on encephalopathies. Gave a lecture at the National Epilepsy Centre, Shizuoka, Japan on "Management of Intractable Epilepsies". As Secretary-General of the 18th International Epilepsy Congress attended the annual meeting of the Japanese Epilepsy Association and American Epilepsy Association for promotional activities in Japan and USA.

Dr. S.Roy visited the Al-Fateh University, Tripoli, Libya as a Visiting Professor for one week in June, 1988.

Dr. S.S.Saini was invited as Visiting Consultant to Pinder Field Gen. Hospital, Wakefield, U.K. which is the regional Neuro surgery Centre for West Yorkshire County - August to Oct., 1988.

Dr. P.N.Tandon was elected Vice President of Indian National Science Academy and the National Academy of Sciences.; co-opted member of the task force on Medical Biotechnology under the Department of

Biotechnology.; appointed Chairman of the "Working Group on Medical Education Training and Manpower" and member working group on Containment of Non communicable Diseases for the VIII Plan. The Prime Minister nominated Dr. Tandon as a member of the Governing Body of the CSIR.; and as chairman selection committee for Sr. fellows and research associates for CSIR.

Dr Ashok Verma was awarded the BOYS-CAST fellowship for six months w.e.f. 18th October, 1988 by the Department of Science and Technology. During this period he was conferred a position of full-time visiting faculty to the Neurology Deptt., University of Vermont, College of Medicine, Burlington, USA. attended neurology review course, organised by CIBA-GEIGY at Marriott. Boston, USA ii) Attended the Regional Neurology meeting at Durham, NH, USA. iii) Presented paper 'Spinal segmental amyotrophy in juvenile and young subjects' at the 1988 International Congress of the Medical Society on Motor disorders (ISMD) ' at Rome, ITALY.

Visiting Scientists

Dr. J. Alcardi of France had a short visit, took ward rounds and gave a lecture.

Dr. Eric A. Kafiluddin, Neurologist of Surinam visited the department gave a lecture and participated in the teaching programme of the department.

Mr. Huw B. Griffith Senior Consultant Neurosurgeon, Frenchay Hospital, Bristol U.K. visited the department in December, 1988. He demonstrated endoscopic fulgaration of the choroid plexus in patients with congenital hydrocephalus. He delivered lectures on lumbar disc syndrome.

Prof. Vats, Pediatric Oncologist, delivered a lecture on "Recent advances in management of CNS tumours in children"

Dr. Sukriti Nag, Associate Prof. of

Neuropathology, Queen's University, Kingston, Canada, gave a slide seminar of interesting and rare cases in Neuropathology.

HOSPITAL SERVICES

Neurology Department

Neurochemistry :

1. Phenytoin estimation tests	3326
2. Carbamazepine estimation tests:	326
3. Elisa Neurocysticercosis	468
4. Latex-agglutination test for meningitis	60
5. CSF immunoglobulin :	90
6. Isoelectric focussing of CSF IgG:	110

Clinical Neurophysiology:

1. EEG	4164
2. EMG	575
3. Evoked potentials	309
4. Polygraph studies	58

Out patient attendance

New cases	12980
Old cases	17952
Total	30932

In patients	1253
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Neurosurgery deptt

Admissions	1994
Surgical operations	1464

ICU facilities in the Neurosciences Centre have been extended.

O.P.D

New Cases	3550
Old Cases	9851
Total	13401

Neuroanaesthesiology

Total no. of general anaesthetic procedures 1258
 No. of patients admitted in ICU

Neurosurgery	643
Neurology	12
Total	655

No. of patients who required respiratory support 197

Pain clinic

New Cases	310
Old Cases	317
Total	627

Neuroradiology

Cranial CT	5301
Myelograms	309
High resolution CT of internal & middle ear	60
Super-selective intra arterial digital subtraction angiography	161
Metrizamide cisternography and CT myelograms	70
Balloon & ivalon embolization of CCF & cranial A.V.M.	25
Ventriculography	25
Shuntograms	20

Neuropathology

1) Surgical neuropath	1027	
2) Autopsies	43	22 Adult 21 Paediatric
3) Frozen sections	70	
4) Electron microscopy specimens	133	
5) Immunohistochemistry for diagnosis of brain tumors & pituitary adenomas.	108	
6) Enzyme histochemistry on muscle	57	

Enzyme histochemistry for diagnosis of various muscle diseases has been introduced as a diagnostic service from this year.

Community Services & Education

Dr K. Prasad gave a public lecture on "Effect of diabetes on nervous system in diabetes education programme conducted by the department of Endocrinology, AIIMS and participated in the panel discussion held during "Diabetes Awareness 1988" organised by the Department of Endocrinology, AIIMS.

Dr M.Behari gave two talks on Epilepsy on All India Radio.

Dr A.K.Banerji delivered talks on 'Management of accidents' and 'Head injury' on AIR.

PUBLICATIONS

1. Ahuja GK, Pauranik A., Behari M. and Prasad K. Treating Epilepsy. Jour. Neuro. 1988; 235:444-447
2. Bhatia S. & Tandon P.N.: Solitary 'microlesions' in CT: A clinical study and follow up. Neurology (India) 1988;36: 139-150.
3. Bhatia S., Mehta VS, Banerji AK & Tandon PN: Anterior cervical discectomy without interbody fusion NIMHANS Journal 1988; 6:119-131.
4. Bhatia R, Mehta VS: The posterior approach for congenital atlanto-axial dislocation with special reference to the use of acrylic fixation and halo pelvic traction. NIMHANS Journal 1988;6:53-57.
5. Kumar N, Behari M., Ahuja GK and Jailkhani B.L. Phenytoin levels in catamenial epilepsy. Epilepsia, 1988, 29:155-158.
6. Mahapatra AK. Brain abscess an unusual complication of cavernous sinus thrombosis. Clinical Neurology and Neurosurgery, 1988 90, 241-243.
7. Mehta VS, Banerji AK & Verma AK. Delayed injection injury of axillary nerve Neurology India 1988; 36: 105-108.
8. Mehta VS: Chondroma of the cervical spine. Neurology India 1988;36, 247.
9. Mehta V.S., Banerji, A.K., Verma A. Delayed injection injury of axillary nerve - a case report. Neurology (India) 1988; 36:105-108.
10. Moonis M., Gupta R., Kumar K., Behari M., Prasad K., Goulatia R.K. and Ahuja G.K. Proximal myopathy as a presenting feature in hyperparathyroidism. Ind Paed 1988, 25:694-697.

11. Moonis M., Jain S., Prasad K., Mishra NK, Goulatia R.K. and Maheshwari M.C. Left thalamic hypertensive haemorrhage presenting as transient global amnesia. *Acta Neurol Scand* 1988, 77: 331-334.
12. Sarkar C: Some recent developments in neuro-oncology. *Current Sciences*. 1989, 58: 130-132.
13. Varma A., Pauranik A. and Maheshwari M.C. Intranuclear ophthalmoplegia of abduction. *Neurology (India)* 1988; 36: 163-166.
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Collaborative publications

17

Chapter in Books

1. Jain S and Bansal B.C.: Immunological aspects of neuromuscular diseases. In *Recent Advances in Medicine*. Eds. Mehta A.B. and Daruwala D.F. 1989, 107-116.
2. Maheshwari M.C. Evaluation of autonomic nervous system dysfunction. In. Tandon P.N., Bijlani V. and Wadhwa S. *Lectures in Neurobiology*. Rakino Press New Delhi, 116-122, 1988.
3. Maheshwari M.C. The management of intractable epilepsies. In. Sinha K.K. and Chandra P. *Progress in Clinical Neurosciences*, Vol 1, Catholic Press Ranchi 141-149, 1988.
4. Mahapatra AK. Current concepts of management of indirect optic nerve injuries. In *Progress in Clinical neurosciences*, ed Sinha, K.K. 167-177 1988.

5. Saini S.S., Singh M., Cardiopulmonary resuscitation in medical emergencies in children Ed Singh M. Sagar Publications, New Delhi 1988, pp 7-17.
6. Saini, S.S.: Treatment of chronic pain. In Lectures in Neurobiology Ed Tandon P.N., Bijlani V. Wadhwa S.: Rakmo Press, N.Delhi 1988 pp 67-73.
7. Prasad K. Neurological disorders: Immunological considerations. In. Tandon P.N., Bijlani V., Wadhwa S (Eds). Lectures in Neurobiology, 1988, p.134-141.
8. Roy S. (1988): Pathological changes in aging brain. In: Lectrures in Neurobiology, Ed. Tandon P.N., Bijlani V and Wadhwa S pp 58-61.
9. Tandon P.N., Bhatia R., Bhargava S: Tuberculous meningitis: Hand Book of Clinical Neurology (Microbiol Diseases) Vol 8/52, Ed AA Harris, Elsevier Science, Publishers B.V.1988; p. 195-226.

Monographs

Lectures in Neurobiology - Ed Tandon P.N., Bijlani V & Wadhwa S., 1988. (Neurosciences Centre & Deptt. of Anatomy , AIIMS). Rakimo Press, New Delhi.

Papers under publication 29

Papers read at various conferences 8

Chapter 6.27

NUCLEAR MEDICINE

FACULTY

Professor and Head

A.K. Basu

Professor

P.G.Gopinathan Nair

Associate Professors

A. Malhotra (CTC)

G.P. Bandopadhyaya

A.K. Padhy

Assistant Professor

G.S. Pant

Prof. Basu and Dr. Pant are on deputation to Nepal. Prof. Gopinathan Nair is the officiating Head of the Department.

EDUCATION

Undergraduate

Topics in Nuclear Cardiology have been introduced in the form of lectures and seminars.

Postgraduate

Midweek learning exercises and subject review sessions in Nuclear Cardiology for post graduates of D.M. (Cardiology) have been started. Introductory lectures/practicals for M.Sc. (Biotechnology) on radioactivity counting and quantitation have been started.

Paramedical

Introduction to routine Nuclear Cardiology procedures is being given to B.Sc. Nursing students.

Continuing Medical Education

Dr. P.G. Gopinath gave talks on Atoms for peace, power and prosperity.; Basic principles and techniques of Nuclear Cardiology.; Measurement of cerebral blood flow.; Radioisotopes in genitourinary diseases and Treatment of hyperthyroidism with I-131.

Dr. G.P. Bandhopadhyaya : gave a talk on Quality control of essential radiopharmaceuticals.

Dr. A. Malhotra : gave lectures on Exercise radionuclide ventriculography.; Antimyosin antibodies in the detection of myocardial infarction and Nuclear Scanning in Cardiology.

Dr. Sneh Lata (S.S.O.) Provided training to medical and paramedical personnel in RIA techniques for T3, T4 TSH measurement.

RESEARCH

Research Completed

Treatment of toxic solitary thyroid nodule

The philosophy and strategy of treating toxic solitary thyroid nodules are quite different from those of treating diffuse toxic goitre. 21 patients of toxic solitary thyroid nodule were treated with 'adequate' doses of I-131. Much higher I-131 doses were required to achieve euthyroid state in a reasonable time. There was no single case of hypothyroidism during the follow up period of 3-24 months. Except one patient all required only a single dose. One patient was given two doses to achieve euthyroid state. It was concluded that concern of producing hypothyroid state should not restrain one from giving "adequate" doses of I-131 while treating a toxic solitary thyroid nodule.

Effects of internally administered radioisotopes on the developing brain of rat (Anat, Nuc. Med.)

Efficacy of pilocarpine borate and pilocarpine nitrate for the management of glaucoma in experimental animals (Nuc. Med., RPC)

Role of radiolabelled HCG monoclonal antibody for tumor imaging (Nuc. Med., Bio Chem)

Study of duodeno-gastric reflux in thoracic stomach (Nuc. Med., Surg)

Clinical and investigative profiles of biopsy proven idiopathic myocarditis (CTC, Nuc. Med, Microbiol)

Quantitative grading of Ex RNV for patients with CAD using multivariate discriminant analysis (CTC., Nuc. Med.)

Research Continuing

Determination of the radiation dose to relatives of patients who are given radioiodine I-131 for treatment of thyrotoxicosis

Close relatives of patients, like wife and children are given thermoluminescent dosimeters (TLD) to wear on their persons all the 7 days following I-131 therapy to the patient. Patients are allowed to return to their home after receiving I-131. Basic precautions to prevent contamination of environment are explained to the patient before sending him home. This study is expected to indicate the patient's radiation burden which is likely to pose a risk to others. Preliminary data show that less than 5 mCi in the patient does not pose a risk.

DMSA renal scintigraphy in the management of hydronephrosis

An attempt is being made to objectively monitor the alteration in renal function following surgery in

patient with hydronephrosis by serial quantitative Tc-99m DMSA scanning (DMSA uptake study). One of the major objectives of this study is to provide a clear cut guideline (regarding surgical intervention) to the surgeon in patient with hydronephrosis.

Radiolabelled antimyosin monoclonal antibodies in the detection of acute experimental myocardial infarction (Nuc.Med., Pharmacol)

Role of dobutamine in the evaluation of patients with coronary artery disease (CTC, Nuc. Med.)

Detection of acute rheumatic carditis by In-111 antimyosin monoclonal antibodies and Gallium-67 (CTC, Nuc. Med.)

Identification of coronary artery disease in the presence of left bundle branch block by exercise radionuclide ventriculography (CTC, Nuc. Med.)

A comparative study of the rate of urological complications of the conventional intravesical and the recent extravesical techniques of ureteroneocystostomy in renal transplantation (Surg, Nuc Med.)

New Research

1. Efficacy of Piloclomidinne on acute intraocular pressure rise following anterior segment laser surgery.
2. Determination of blood flow to abdominal Viscera using labelled microspheres in normal and Portal hypertensive rats.
3. Evaluation of Vascularity of femoral head following internal fixation and muscle pedicle grafting by Tc-99m MDP bone scanning in patients with fracture neck of femur.
4. Evaluation of ventricular function in patients before and after mitral valve baloon dilatation using radionuclide methods.

5. Role of Pulmonary perfusion scintigraphy in patients after Fhontor operation.
6. Assessment of pulmonary wedge pressure by equilibrium blood pool scintigraphy.
7. Exercise Thallium-201 myocardial perfusion Scintigraphy in patients with CAD before and after baloon angioplasty.
8. Microautoradiography in the assessment of acute experimental myocardial infarction using radiolabelled antimyosin antibodies.

AWARDS AND EVENTS

Significant Events

Dr. Gopinath has been nominated as a member of the radiopharmaceutical committee of Government of India.; member of the Management Advisory Committee of the Magnetic Resonance Imaging National Facility.;member of the Board of studies (Nuclear Medicine) of the Sanjay Gandhi Post Graduate Institute of Medical Sciences, Lucknow.

Dr. Gopinath visited selected centres in USA in July'88 to get short term training in recent advances in Nuclear Medical Computer methods.

Dr. G.P. Bandopadhyaya visited Bir Hospital, Nepal as an expert for giving radiopharmacy training to the medical and paramedical staff.

HOSPITAL SERVICES

Nuclear medicine clinic

Monday and Thursday morning

List of investigations and therapy

I. Investigations

1. Thyroid

RAIU	2400
Scan	873
Perchlorate discharge test	20
T-3 RIA	176
T-4 RIA	176
TSH	25

2. Liver/G.I. Tract

Liver scan	143
Hepatobiliary	142
G.E. Reflux	118
Meckel's study	6
G.I. bleeding	23
Duodeno gastric reflux	40

3. C.N.S.

Brain flow and Static brain Scan	17
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4. Genito-urinary tract

Renal dynamic Study	812
DMSA scan	32
Voiding Cystography	184
Scrotal scan	8

5. Bones and Joints

Bone scan	294
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6. Hematology

RBC survival study	5
Plasma volume estimation	19
Splenic scan for accessing spleen	5

7. Oncology

I-131 WBS for monitoring Ca thyroid patients	72
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8. Cardiology

Exercise ventriculography	536
Rest	701
Thallium-201 scintigraphy	6
Tc-99m Pyrophosphate myocardial scintigraphy	118
First Pass studies	18

II. Radioisotope therapy

I-131 - Thyrotoxicosis	176
I-131-Ca. Thyroid	42
P-32-Polycythemia	7

III. Nuclear medicine clinic

New Cases	580
Old cases	1632

IV. Indoor patients

Total no. of Ca. Thyroid patients admitted under Nuclear Medicine care	42
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PUBLICATIONS

Collaborative publications	4
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Books

Proceedings of National Symposium and Workshop on Nuclear Cardiology Eds. Gopinath P.G. and Malhotra., A RNC Print and Publishing Company, AIIMS, New Delhi-1988.

Papers presented at Scientific meetings	5
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Chapter 6.28

OBSTETRICS AND GYNAECOLOGY

FACULTY

Professor and Head	K.Buckshee
Professor	V.L.Bhargava
Additional Professor	D.Takkar
Associate Professors	S.Mittal
	G.Kinra
	P.N.Anandalakshmi
Assistant Professors	Sunesh Kumar
	A.Kriplani
	D.Deka
	Neerja Bhatla

EDUCATION

Eleven foreign undergraduate medical students from U.S.A.(3), West Germany (2), U.K. (3), Srilanka (1) and Catholic University, Netherlands (2) received training for 2-3 weeks in maternal and child health(MCH), family welfare and high risk pregnancy.

Post-Graduate

Graduate students from Guntur (1), Ranchi (1) and Bhutan (1) came for intensive training in microsurgery, infertility, gynae-endocrinology, high risk pregnancy,

prenatal diagnosis by level II ultrasonography and gynaecology oncology for 90 days. Short term training ranging from one to four weeks was given to students from different parts of the country like, Aligarh (2) Bhopal (3), Jamshedpur (1), Delhi (1) in microsurgery, gynae-endocrinology. high risk pregnancy, gynae-oncology, ultrasonography in obstetrics and gynaecology. A professor from Bangladesh came on WHO fellowship for four weeks for intensive training.

Continuing Medical Education

A CME programme on reproductive endocrinology and safe motherhood was organised by Dr.K.Buckshee in September 1988. Dr.Walker of Glasgow Royal Maternity Hospital and Dr.Rohde, Special Advisor, UNICEF gave lectures on problems related to reproductive health and safe motherhood.

Prof.K.Buckshee gave guest orations and lectures on "Current status of prenatal diagnosis in India" at Jaipur in October 1988; "Scope of bio-chemical fetal therapy" during the 32nd All India Obstetrics and Gynaecological Congress; "Pelvic infection" at FOGSI, Dr.C.L.Jhaveri, symposium at Mysore December, 1988; "Clinical picture of acute PID" and "Management of preterm labour" February, 1989 in the symposium on "Preterm Labour" at the 3rd Joint Convention of Obstetrics and Gynaecological Societies of Bengal at Calcutta; "An Obstetrician's challenge, early prenatal diagnosis" at Bhubaneshwar; 'Current concepts in the diagnosis and management of hyperandrogenism in the female at Nagpur Obstetrics and Gynaecological Society March 1989; she chaired guest lectures on "Management of preterm labour at the XI annual conference of Association of Obstetricians and Gynaecologists at Delhi October, 1988; National Neonatology Forum at the workshop on neonatal nomenclature and data collection held at AIIMS August 1988; Inaugural session of Indo British symposium on "Perinatal care at Maulana Azad Medical College in November 1988; sessions of the 32nd All India Obstetrics and Gynaecological Conference at Mysore in December 1988 and on high risk obstetrics and maternal morbidity and mortality in developing

countries was co-chaired by her at a WHO workshop at Calcutta in February, 1989; chaired a scientific session on "Incontinence and fistula in females" at an international symposium on Adult and Paediatric Genito - Urinary Reconstructive Surgery held at AIIMS in March 1989; organized an 'Infertility Quiz' for young members of the Northern Zone Societies of India in November 1988 at New Delhi; a workshop on Reproductive Endocrinology held at Mysore in December 1988; attended the meeting on "use of estrogen progesterone, combination drugs in clinical practice at ICMR headquarters, Delhi in January, 1989 and of the working group on safe motherhood activities; was a penalist in the WHO workshop on maternal and perinatal morbidity at Calcutta February 1989.

Prof.V.L.Bhargava gave a lecture on "Classification of still birth as applicable to the different health care system" at Neonatology Workshop Delhi in August 1988, talk on 'Epidemiology and early detection of cancer cervix on the Institute Day, and on 'Antenatal care and fetal outcome' at first annual conference of Association of Nursing Research of India in September, 1988; gave a lecture on 'Epidemiology - early diagnosis and management of cancer cervix' at Dhanbad; delivered a keynote address on 'Experience with pregnant diabetic management' and a talk on 'Female genitoplasty' during the Golden Jubilee symposium on 'Intersex' in December 1988; delivered a lecture on 'Diagnosis of female genital cancer' at the workshop and a talk on 'Post dated pregnancy' at a WHO workshop at Calcutta on maternal and perinatal mortality; chaired a session on 'Gynaecological malignancies in surgical practice' at the Golden Jubilee annual conference of Surgeons September, 1988, chaired the committee for making the protocols for management of female genital tract malignancies at a workshop on surgery and chemotherapy in cancer held at Kathmandu, Nepal, December, January, 1989; was a participant in the 6th IMACGP national conference on 'Recent advances and role of family physician in managing menstrual disorders'

Dr. Takkar was an invited speaker on 'Medical evidence in alleged rape, sexual offences, abortions, deliveries, child destruction and infanticide' in the 7th course on orientation to forensic sciences in April 1988; gave a lecture on 'diabetes mellitus and pregnancy' as an invited speaker in the 7th annual national seminar of the IMA Academy of Medical Specialities September 1988; invited lecture on 'Hormonal treatment of DUB' in December 1988, during the XI annual conference of AOGD at Delhi; was a participant in the Neonatal Workshop held at AIIMS in August, 1988.

Dr. G. Kinra attended the symposium on 'update in urinary tract infections' at Delhi in April, 1988.

Dr. Sunesh Kumar gave a guest lecture on 'Role of ultrasound in obstetrics' during VII annual medical seminar of IMA Saharanpur Branch January, 1989; participated in the workshop on medical education planning and examination held at Summer Hills, Shimla October, 1988, two workshops on 'Evaluation and assessment in undergraduate medical education and assessment of skills of interns' at AIIMS in December 1988.; participated in a seminar on 'Current developments in medical education' in January, 1989 and was a panel member in CME programme on reproductive endocrinology held at Mysore in December, 1988.

RESEARCH

Research Completed

An approach to reduce perinatal morbidity and mortality.

Six hundred ultrasound scans were done in 150 women between 10-20 weeks of gestation to establish fetal norms in early fetal life (< 20 weeks) and to detect congenital anomalies of various body systems. The study standardised norms of fetal AVHR (anterior ventricular hemisphere ratio), PVHR (posterior

ventricular hemisphere ratio), FKC/FAC (fetal kidney circumference), posterior nuchal thickness for early prenatal diagnosis and decision regarding fetal therapy or surgery or termination of pregnancy with a major congenital abnormality. The study established nomograms of AVHR PVHR, FKC /FAC and nuchal thickness for the first time in India and laid the foundation of prenatal diagnosis and management in fetal medicine. Cardiomegaly, hydrocephalus, hepatomegaly ascites, spina bifida, microcephaly, polycystic kidney, duodenal atresia, hydrops fetalis, skeletal dysplasia and Down's syndrome were detected and managed early.

Advance research on hormonal contraception

Clinical trial with three anti-HCG vaccines was undertaken to study contraceptive efficacy and side effects of anti HCG vaccines in 26 women of whom 18 received booster doses. All women responded with significant antibody titres, peak levels were seen at 12 weeks and no organic, metabolic or hormonal changes were noted. Booster injections without carrier were given to women with hypersensitivity to tetanus.

A new approach for early detection of microadenoma of the pituitary. (Endocrin, Ob. & Gyn)

Research Continuing

A new dimension for antenatal detection of skin disorders

Fetal skin biopsy was performed by the unreported percutaneous ultrasound guided method in 16 cases at 15-22 weeks of pregnancy. It was found to be a safe, simple and efficient method in experienced hands for obtaining fetal skin biopsy. Albinism was excluded in the diagnostic case by demonstrating melanogenesis by EM studies. There is limited world experience in this procedure. No reported literature is available for this technique. The technique has been established in the department for the first time in India and abroad.

A new approach for the management of rhesus isoimmunised women:

Inspite of effective preventive measures being available, Rhesus isoimmunization is still a significant cause of adverse perinatal outcome in our country. Study evaluates ultrasonographic signs as predictors of outcome in Rhesus isoimmunized women. Foetal scalp oedema, head circumference, heart size, placental thickness, liver size, ascitic pocket, liquor pocket, foetal breathing movements are being evaluated to diagnose Rhesus isoimmunization at an early stage and to correlate with antibody titres by indirect Coomb's test and spectral absorption analysis of amniotic fluid. Preliminary results indicate fairly good correlation between ultrasonographic signs and foetal outcome.

New predictors of high risk pregnancy outcome Sonographic measurement and evaluation of umbilical cord diameter and amniotic fluid volume

Outcome of high risk pregnancy depends on early identification of the foetus at risk in utero and the decision about optimal time for termination of pregnancy. The present study is aimed to evaluate umbilical cord diameter and amniotic fluid volume as predictors of pregnancy outcome, and to establish standard norms of these parameters at different periods of gestation for the Indian population.

To study significant differences in these parameters in normal and high risk pregnancy cases, a total of 80 cases comprising normal pregnant women (40), diabetes with pregnancy (10), Rhesus isoimmunization (10), bad obstetric history (10) are being subjected to serial ultrasonography from 28 weeks of pregnancy till delivery.

Extended phase I clinical trial on three anti HCG vaccine

This is an extension of previous clinical trial of three anti HCG vaccine for contraception. The aim of the

study was to determine whether hypersensitivity to tetanus toxoid can be obviated by limiting the number of injections employing tetanus toxoid as a carrier and to confirm the results of relative immunogenicity of the two vaccines. Two vaccines namely annealed Alpha - OLH - Beta HCG linked to carrier (A) and Beta HCG linked to carrier (B) are given in doses of 35,100 and 300 microgram. Twelve cases have been recruited & each received 3 doses. Hormonal studies, urinary glucoronides, HCG challenge study and major histoincompatibility studies besides clinical chemistry, haematological parameters and anti HCG titre are being done in the first 8 weeks. Results have shown significant anti HCG titres and peak values after the second injection.

Evaluation of EFP rings for female sterilization (ICMR)

Objective of this project was to evaluate EFP rings for female tubal sterilization. Forty five women who were sterilized using EFP rings are being followed up regularly at six monthly interval. So far no failure or any other complication has been noted. During the year four districts of Hissar, Aligarh, Dehradun and Agra were evaluated.

Clinical trial of a weekly contraceptive - centchroman; oral pills (Mala N) and copper T 200 mm (ICMR):

In this study 18 patients were given centchroman a weekly nonsteroidal anti-implantation synthetic compound which manifests its contraceptive action at the uterine level due to its multiple hormonal attributes such as anti-estrogenic and antiprogestational properties.

Patients receiving oral pills (Mala-N) and Copper-T served as control. In this study metabolic parameters and changes in ovarian size by ultrasonography in centchroman users are being compared with control subjects.

"Determinants of maternal mortality- An epidemiological approach"

This study is being carried out with an aim to identify the determinants and key risk factors currently responsible for maternal mortality. Using discriminant function the probability of a mother dying during child birth has been determined. Currently computer analysis of six binary risk factors is going on.

Quality evaluation of family welfare and MCH services at primary health centre level - a multicentric study (ICMR)

This study is aimed at evaluating family welfare and MCH services at primary health centre level is being carried out by the Ministry of Health and Family Welfare, Government of India through various medical colleges all over India. During the year four districts - Hissar in Haryana, Aligarh, Dehradun and Agra in U.P. were evaluated.

The objective of this evaluation is to carry out an independent evaluation of quality as well as quantity of the family welfare services and MCH services at PHC level in India. The study also helps in verification of the family welfare services actually delivered and claimed to be delivered by PHC subcentre to the people in the villages.

A new dimension for detection, diagnosis and management of fetal disorders (Ob & Gyn, Pediat)

Doppler blood flow velocity waveform in the fetal descending thoracic aorta (Ob & Gyn. Rad.Diag.)

Thyroid dysfunction in pregnancy (Endocrin, Ob & Gyn)

New treatment protocols for hypertensive disorders of pregnancy (CTC, Ob & Gyn, Pediat) A new approach to arrest preterm labour (Ob & Gyn. Pediat)

A new dimension: Assessment of tubal status by Decler's starch test, technitium tubal scan (Ob & Gyn, Nuc. Med.)

Screening of cervical scrapes for human papilloma virus (HPV) by DNA in situ hybridization (Ob & Gyn, Microbiol)

New Research

1. Fetal scalp blood PH estimation for evaluation of fetal distress.
2. Role of progesterone challenge test in screening post menopausal women for endometrial cancer.
3. Lupus anticoagulants (LAC) and pregnancy loss
4. Study of serum copper level in case of genital malignancy. 5. Down staging of cancer cervix- a step towards improving detection of cancer cervix cases (ICMR)

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr.Kallol K Roy was awarded first prize for the best paper at the time of XI annual conference of Obstetricians and Gynaecologists held in October, 1988.

Significant Events

Prof.Buckshee was appointed by planning Commission as a member of the working group of the steering committee for the 8th five year plan (1990-95) on safe motherhood activities. Ministry of Health and Family Welfare sponsored her for a four week short course at University of Hawaii on 'Design and implementation of child survival programme' in May 1988; has been nominated as member for four regional seminars on OCP

(North, South, East & West) under the aegis of ICMR; continues to be the Chairman of reproductive endocrinology committee (FOGSI), member of editorial board, National Neonatology Forum Bulletin, Journal of Obstetrics and Gynaecology of India; has become a member for the panel of Obst. & Gynae. Instruments and appliances sectional committee, CPCD 25 of Bureau of Indian Standards.

Prof. Bhargava has become a member of the ICMR task force for district level programme for control of cervical cancer; attended XII World Congress of Obstetrics & Gynaecology at Rio-de-Janeiro-Brazil October, 1988 and presented a paper on ultrasonic evaluation of foetal weight; was an invited speaker on cancer of uterine cervix morphology nomenclature as related to clinical behaviour of the Inter Registry Panel of pathologists at the 7th annual review meeting of National Cancer Registry project at Bhopal November, 1988; gave a talk on 'Medical care for working women' at an Indo-Soviet seminar on Women's Health and Child Care organised by Ministry of Human Resources Development at Srinagar; nominated as a member of editorial Board of National Neonatology Forum Bulletin for the year 1989 and a member of ICMR project review committee (Oncology & Pathology).

Dr. S. Mittal attended meeting of status study of training in Family Welfare in Medical Colleges of India at National Institute of Health and Family Welfare in May 1988; a regional seminar on oral contraceptive pills organised by Ministry of Health and Family Welfare at ICMR in April 1988.

Community Service and Education

Prof. V. L. Bhargava gave talks on All India Radio on 'Striyon ke rat samooch mein, Rh factor se honewali samasya, Sex education for young people. AIDS in women and children and 'teenage pregnancy'. Dr. G. Kinra was a participant in the 'Quiz programme' on 'Health problems in daily life' and gave talks on 'Antepartum, intrapartum and post partum management', Problems of

anaemia in women of reproductive age group, and 'Disease in women: prevention and cure' on All India Radio.

Visiting Scientists

Dr.J.H.Taktor from Israel visited the department and delivered a lecture on Role of laser in management of pre-invasive carcinoma of cervix.

Post-Partum Programme

The programme is run as an integrated multidisciplinary exercise where the department actively co-ordinates with departments of Paediatrics, Community Medicine and Anaesthesiology. The programme director and faculty members of the department attended the review meeting chaired by Secretary (Medical) at the Directorate of Health and Family Welfare. During the year co-ordination committees were held under the chairmanship of the Director.

Target Achievement

During the year under review the programme has exceeded the allotted targets in oral pills and conventional contraceptives. In CuT, achievements was 57.1% and in sterilization it was 33.5% of the allotted targets (Annexure I). Overall performance of various family welfare methods maintained the same level as that of the previous year.

Community Health

Better health for mother and children, an important component of post partum programme is ensured through a variety of services to the the persons visiting the post partum unit of the hospital and to the population residing in the field practice areas viz. Kotla Mubarakpur, Gautam Nagar, Kidwai Nagar, Rajeev Gandhi Colony, Masjid Moth Village etc. of the post partum unit. The communication strategy has been revamped to obtain greater community participation in

the health and family welfare programmes. Pharmacists, deputed by Delhi administration, carried out the immunization status survey of urban slums. They also motivated the men in the community for vasectomy, as a promotional strategy.

Maternal and Child Health

Enhanced maternity and child health care is provided in the hospital and its field areas like Kotla Mubarakpur, Gautam Nagar slums, Masjid Moth village, Rajeev Gandhi colony etc. so as to reduce in general perinatal and infant morbidity and mortality. This includes immunization against tetanus to expectant mothers, and protection of children against the six common childhood diseases, tetanus, polio, T.B., whooping cough, diphtheria and measles, through universal immunisation programme. The targets and achievements in maternal and child health activities are indicated in (Annexure II).

Education : Maternal and Child Health

Six orientation training camps, two well baby shows, a series of seminars were held on promotive and preventive aspects of maternal and child health with special stress to family welfare and immunization. Also film shows and magic shows were conducted at our urban slum areas of Kotla Mubarakpur, Masjid Moth, Gautam Nagar and Rajeev Gandhi Colony. Motivational activities were further strengthened by repeated door to door visits to mobilise eligible couples towards the camp activities. Prizes were distributed to selected children of age group (1-5) years and below 1 year. Composite programmes were also held depicting the theme of small family norm and better maternal and child health.

A new approach to assess the community health:

For active participation of the community and at the same time to provide education, prizes were given to children of various age groups of the community assessed through a new scoring system developed with a

special stress to family welfare and MCH programmes. A special incentive scores were given to children of tubectomised or vasectomised parents after one or two children.

HOSPITAL SERVICES

Besides the regular gynaecology outdoor which is held every day, the following speciality clinics are held.

1. Antenatal and high risk pregnancy clinic	3/week
2. IVF clinic	1/week
3. Infertility clinic	3/week
4. Family welfare clinic	6/week
5. Medical termination pregnancy clinic	6/week
6. Gynaecology endocrine clinic	3/week
7. Colposcopy & early cancer detection clinic	2/week
8. Gynaecological cancer clinic	2/week
9. Post natal clinic	3/week
10. Family welfare clinics(in field practice)	2/week

Operations Performed

Gynaecological	Major	1353
	Minor	5794
Obstetrics	Major	1661
	Minor	2772

Fetal Medicine

Chorion biopsy	16
Fetal skin biopsy	1
In utero fetal transfusion	7

Specialised Investigations:
Obstetric and gynaecological

Ultrasound	Level I	7500
	Level II	540
	Level III	33
Non stress test		2707
Oxytocin challenge test		55
Manning score		222
Fetal Cordocentesis		12
Hysteroscopies		133
Colposcopies		521
Laparoscopy		420
<u>Laboratory Tests</u>		
Semen analysis		785
Sperm agglutination		390
Fructose analysis in semen		12
Acid phosphatase in semen		12
Shake test in amnotic fluid		25
Pregnancy test		55
Klaihewer test		10
Urine - routine and microscopic		87
Haemoglobin		95
Complete haemogram		35

PUBLICATIONS

1. Buckshee, K., Biswas, A., Mittal, S., Aggarwal, N: Eisenmenger's syndrome with pregnancy. A rare obstetrical problem with successful outcome. Asia oceania J.Obstetric Gynaecol, 1988, 14, 323-325.
2. Mhaskar, R.,Takkar, D., Bhargava. V.L.: Endometrial stromal sarcoma A case report. J. of Obst. & Gynae. of India 1988; 37: 376.
3. Sharma, V., Pandey, N., Vijay, G., Kriplani, R.: Term pregnancy in accesssory horn of uterus, J, of Obst. & Gynae of India, 1988, 38 228-9.
4. Vijay, G., Kriplani, A., Goyal, K : Antenatal identification of spontaneous pretern birth, J. of Obst. & Gynae of India, 1988;38, 11-15.
5. Vijay, G., Kriplani, A., Kaur, R: Physical changes in cervical mucous in women using CuT.J. of obst. & Gynae of India, 1988, 38, 58-62.

Collaborative publications	3
Papers presented in conferences	6
Papers accepted for publication	9

ANNEXURE - I

TARGETS AND ACHIEVEMENTS OF DIFFERENT FAMILY PLANNING METHODS

POST PARTUM PROGRAMME

Methods	Target	Achievements	%Achievement
CuT	2000	1141	57
Oral pills (users)	24	60	250.0
Conventional contraceptives (users)	3000	4347	144.9
Jelly	-	702	-
Diaphragm	-	5	-
Sterilisation	2640	884	33.5
(a) Tubectomy	-	837	-
(b) Vasectomy	-	47	-

Annexure II

MATERNAL & CHILD HEALTH (MCH) PERFORMANCE-POST
PARTUM PROGRAMME

Services	Targets	Total Immuni- zation	Achieve- ments	% achieve- ments
T.T. Immunization for expectant mothers	8000	3376	1536	19.2
D.P.T. Immunization (0-1) Years				
(1-2) Years	5000	6603	1892	37.9
Polio (0-1) Yrs.				
(1-2) Yrs.	5000	6670	1899	38.0
B.C.G. (0-1) Yrs.	5000	2608	2608	52.2
Measeles (0-1) Yrs.				
(1-2) Yrs.	5000	1445	1445	28.9
D.T Immunisation Pre-School children (2-5)Yrs	1500	905	646	43.1
Typhoid	500	787	272	54.4
Iron & Folic Acid against nutritional anaemia				
Mothers expectant & Nursing	5500	2900	2900	52.1
(No. of new cases started the course)				

Children (1-12) Yrs. (No. of new cases started the course)	600	1276	1276	202.7
Prophylaxis against Blindness Vit. 'A'	600	1964	732	122.0

Chapter 6.29

ORTHOPAEDICS

FACULTY

Professor	P.K.Dave
Emeritus Professor	P.Chandra
Additional Professors	M. Farooque
	S.Bhan
Associate Professors	P.P.Kotwal
	U.C.Sarma
	S.Rastogi
Assistant Professor	A.Jayaswal

Dr.S Bhan was promoted as Additional Professor during the year under review.

EDUCATION

Continuing Medical Education

Prof. P.K.Dave chaired scientific sessions of the WHF-ICMR-HFI workshop on "Haemophilia" organized by the Haematology Unit of the Deptt. of Pathology, AIIMS, in January, 1989; during the VIII annual conference of North Zone Orthopaedic Association held at Delhi in March, 1989; "Biomechanics of rehabilitation and environment" at the national conference on Biomechanics held at I.I.T. Delhi in December, 1988; delivered a lecture on "Scoliosis - Past and Future" in the continuing Orthopaedic Education Programme organized by Maulana Azad Medical College, New Delhi in Feb-March.

1989; chaired a seminar on "Spine" organized by the 1st Afro-Asia-Oceania Congress of Anatomists held at New Delhi in Aug-Sept.1988; was nominated Chairman of the Scientific Committee for the VIII annual conference at North Zone Orthopaedic Association held at New Delhi in February, 1989; guest lecture on "Management of Scoliosis" in the North Zone Conference of Indian Orthopaedic Association held at New Delhi in Feb. 1989.

Dr. M.Farooque delivered a lecture on "Giant cell tumour of bone: changing concepts" at the Continuing Orthopaedic Education Programme held at Maulana Azad Medical College, Delhi; a guest lecture on "A method of resection arthrodesis for tumours around knee" at Govt. Medical College, Jabalpur.

Dr. S.Bhan delivered a guest lecture on "Management of osteoarthritis of knee and hip" at I.M.A. annual conference at Saharanpur, U.P., August, 1988, on "Evaluation and methods of fracture treatment" at Red Cross Society meeting at Kurukshetra Jan. 1989; "Value of Radionucleide scanning in Orthopaedics" in the C.M.E. programme during the XIII annual conference of U.P.Chapter of Indian Orthopaedic Association held at Saharanpur, U.P. march, 1989.

Dr. P.P. Kotwal delivered a lecture on "Problems of skin coverage in orthopaedics" in the C.M.E. programme during the XIII annual conference of U.P. Chapter of Indian Orthopaedic Association held at Saharanpur, U.P. in March, 1989.

Dr. S.Rastogi participated in the national seminar on "Reducing incidence of cerebral palsy in children" in January 1989, organized by the National Institute of Public Co-operation and Child Development New Delhi and "Essential drugs in primary health care in India" in September 1988, organized by the National Institute of Public Co-operation and Child Development, New Delhi.

Dr. A.Jayaswal delivered the following lectures in the C.M.E. programme during the XIII annual conference of U.P.Chapter of Indian Orthopaedic

Association held at Saharanpur, U.P. in March, 1989.
1) Use of vascularised bone grafts. 2) External fixators in Orthopaedic practice.

J.B.Joshi, Superintendent, Physiotherapy unit, was invited to deliver a guest lecture in the "Physiotherapy Update Programme" during the Silver Jubilee Celebrations of the PGIMER, Chandigarh in September, 1988.

Shri V.K.Sherke, Senior Physiotherapist, chaired a scientific session at the XXVII annual conference of Indian Association of Physiotherapists, held at Coimbatore in February,, 1989; delivered a lecture on "Multi-disciplinary role of physiotherapy in the management of leprosy in national workshop on Leprosy held at the Institute for the Physcially Handicapped, New Delhi in October, 1988.

Ms Supriya Bali, Junior Physiotherapist, attended the national course on "Sports physiotherapy" held at Luxmibai Institute of Sports at Gwalior in December, 1988.

Dr. Satish Choudhary, Lecturer in Orthopaedics at Goa Medical College, Panjim, was deputed for training in arthroscopy and Dr. N. Sarma, Dy. C.M.O. (Surg.) Indian Oil Corporation Ltd., Assam, was deputed for training in Orthopaedics for one month in Sept.-October, 1988.

The following para-medical personnel were deputed for short term training in Orthopaedic management in November 1988 by His Majesty's Government of Nepal.

Shri B.B.Amatya, R.B. Shrestha, Shrimati D.M. Shrestha and Miss U. Moktan.

RESEARCH

Research Completed

Evaluation of vascularity of femoral head in fresh fracture of femoral neck following muscle pedicle bone

grafting using bone scanning (EHDP) (Orth., Nuc.Med.)

Evaluation of role of tension on the suture line in nerve repairs and comparison of nerve regeneration after perineural and epineural graft repairs on the sciatic nerve of guinea pigs. (Orth., Path.)

A study of prolapsed intervertebral disc - correlation of clinical and investigative findings with operative findings (Orth., Radio-Diag.)

Research Continuing

Evaluation of results of conservative and operative treatment in intra-articular fractures of lower end of radius.

A total of 40 patients with comminuted fractures of lower end of radius were taken up for this study. Of these, 20 patients were treated by plaster cast while 20 patients were treated by internal fixation or by external fixator. All the patients are being followed up for radiological and functional recovery. The final results are yet to be evaluated.

External fixators in the treatment of trochanteric fractures

Seven patients with trochanteric fractures (both stable and unstable) of femur in the age group of 20-65 years were treated by external fixation. In two patients the fixator was removed after 3 months, after fracture union by the same method. The preliminary results have shown that external fixators can be a good alternative to the other methods in the treatment of trochanteric fractures.

Study on traumatic paraplegia and tetraplegia patients (Orth., Radio-Diag.)

Pulmonary function testing and muscle charting in paralytic scoliosis (Orth., Med.)

New Research

1. Study of diagnostic and treatment variables in acute traumatic haemarthrosis.
2. Comparative study of operative and conservative treatment of intercondylar fractures of elbow in adults.
3. Study of recovery of nerve regeneration by epineural, perineural and epi-perineural repairs in guinea pigs.
4. Comparison of results of fixation of trochanteric fractures of femur by dynamic hip screw and S.P.Nail plate.
5. Intertrochanteric osteotomy for secondary osteoarthritis of hip joint.
6. Standardization of normal range of motion at the neck by using self invented "Cervical goniometer" in 250 subjects of five different age groups.
7. Evaluation of the outcome of two different treatment modalities in patients with stiff and painful joints of the upper extremities following trauma.
8. Efficacy of two different methods of mobilizing stiff shoulders following adhesive capsulitis.
9. Study of the incidence, etiology and therapeutic efficacy in patients with arthrogenous quadriceps weakness.
10. Comparison of two treatment approaches in the index of mobility in patients with ankylosing spondylitis.
11. Outcome of the various surgical approaches employed in the treatment of fracture patella.

12. Results of stretching Vs. relaxation activities in the treatment of stiff and painful shoulder joints.
13. Efficacy of lumbar traction in low backache.

Significant Events

Prof. P.K.Dave was nominated as a member of the Committee constituted to consider the question of transfer of faculty members from various departments to centres and vice versa at AIIMS; as an expert on the Research Degree Committee in Orthopaedic Surgery of the Jiwaji University, Gwalior; a member of the working group on Containment of Non-communicable diseases by the Planning Commission for the 8th Five Year Plan member on the Orthopaedic Instrument Sub-Committee, constituted by Bureau of Indian Standards, New Delhi; elected Editor of the Indian Journal of Orthopaedics; nominated life member of the Indian Society of Biomechanics.

Dr. P.P.Kotwal was nominated executive member of Delhi Orthopaedic Association; executive member of the Indian Society for the Surgery of the Hand and was awarded the Johnson & Johnson and Roaf Travelling Fellowship by the Indian Orthopaedic Association. He visited various orthopaedic centres in ten cities in India over a period of six weeks. He also delivered lectures in various medical colleges.

Dr. S.Rastogi has been nominated life member of the Indian Society of Biomechanics.

J.B.Joshi, Superintendent Physiotherapy unit was invited by the University of Baroda as an expert for the Board of Studies (Faculty of Medicine) meeting in August 1988; as an expert to inspect the School of Physiotherapy, Coimbatore, for recognition of teaching programme and future planning at the Dr. M.G.R.University, Bhartiur, Tamil Nadu in August 1988.

Visiting Scientists

Dr. A.Jalali, President of Indira Gandhi Institute of Child Health, Kabul visited the department in October, 1988. He participated in the various activities of the department. Dr. S.K.Lal, Chief of Spine Surgery Services at Kaiser Foundation Hospital, Los Angeles, California delivered a lecture on "Experience on percutaneous discectomy". Dr. Gaetano Torsi, Associate Professor of Orthopaedics at Milan University, Italy and member of medical and Scientific Committee of Haemophilia Italian Foundation visited the department on 27.1.89. Dr. Paul R.Meyer, Prof. of Orthopaedics and Director of Spine injury Centre, Northwestern Medical School, Chicago, delivered a lecture on 'Spinal Injuries'.

HOSPITAL SERVICES

The department holds a number of speciality clinics, namely, Follow Up, Physiotherapy, Osteoarticular, Tuberculosis, Polio, Hand, Scoliosis, Arthritis, Club foot, Bone and Soft tissue tumours and Disability assessment.

In view of the increasing sports injuries to the knee joints, the surgical procedures of ligamentous reconstruction of the knee joint as well as arthroscopic surgery of the knee joint were established. The department has also started surgical reconstruction for the musculo-skeletal problems of haemophiliacs, in collaboration with the Department of Haematology and Blood Bank.

Medical social welfare unit:

Mr. Rishi Vashist joined as Medical Social Worker on 29.3.89. The medical social welfare unit of the department catered its services to 4,495 patients. These services included:

a) Counselling and case work: services were provided to 342 patients to enable them to overcome/adjust to their physical, social,

psychological or emotional problems so as to enhance their social functioning. In this respect 40 home visits to external agencies were made and correspondence with patients has been established.

b) Tapping of community resources: Financial assistance worth Rs.24,143/- was raised through community support, to provide the orthopaedically handicapped patients implants, artificial limbs, crutches, braces, calipers, drugs and other life saving materials like factor VIII etc. Poor patients were provided with railway/bus fare at the time of discharge from the hospital.

c) Donations: A donation of Rs.45000/- was raised for the treatment and rehabilitation of poor patients. Crutches worth Rs.1500/- and a wheel chair was received as donation.

d) Rehabilitation: A large number of physically handicapped patients were counselled and assisted for their job rehabilitation. Sewing machines and tricycles were distributed. Four children belonging to a low socio-economic group were admitted to children's home. Similarly, an unknown, dumb patient was admitted to a home for able disabled and diseased (Female) beggars.

e) Blood donation camp: A blood donation camp was organized with the assistance of Indian Women Scientists Association in April 1988 at Janakpuri, and 86 units of blood were collected.

Community Services & Education

Prof. P.K.Dave gave the following talks on the All-India Radio, New Delhi. i) Emergency treatment. ii) Cardiopulmonary resuscitation. iii) Haddi ka Kshya Rog (Hindi) iv) Gathia Rog (Hindi) v) Spondylitis ki Bimari (Hindi)

Dr.P.P.Kotwal gave radio talks on "Joron ka Gathia Rog" and "Spondylitis ki Bimari (both in Hindi) in August 1988 and March 1989 respectively.

PUBLICATIONS

1. Dey A, Sarma, U.C., Dave, P.K. Effect of high tibial osteotomy of upper tibial venous drainage: Study by intra-osseous phlebography in primary osteoarthritis of knee joint. *Annals of Rheumatic Diseases* 1989;48: 188-193.
2. Farooque, M., Dave P.K. Concomitant ipsilateral fracture neck and shaft of femur. *Indian J. Surg.* 1988; 50: 30-41.
3. Joshi J.B., Chitkara. Study of limb length disparity in lower extremities following Poliomyelitis. *Indian J. of Physiotherapy.* 1988; 4: 1-8.
4. Kotwal, P.P., Dave, P.K., Dewan, S.K., Rath, S. Evaluation of results of tension band wiring in fracture olecranon. *Clinical Orthopaedics India*, 1988, 3:46-50.
5. Madan, S., Bhan S., Farooque, M. A.O. blade plate in management of trochanteric fractures. *Clinical orthopaedics India*, 1988; 3: 149-155.
6. Rath S., Bhan S. Unusual open injury of multiple metacarpo-phalangeal joints. *Injury.* 1988; 19:339-341.
7. Sarma, U.C., Joshi J.B., Bhan S., Dave, P.K. Arthroscopic surgery and knee joint function. *Ind. J. Orthopaedics.* 1988; 22: 97-102.
8. Sarma, U.C., Reddy P.D., Dave, P.K. Cervical injuries: A conservative approach. *Delhi Orthopaedic Journal.* 1987; 3:15-22.

Collaborative publications

1

Chapter 6.30

OTOLARYNGOLOGY

FACULTY

Professor and Head	S.K.Kacker
Additional Professors	P.Ghosh R.C.Deka S.Bahadur
Assistant Professor	D.A.Tandon

EDUCATION

Paraclinical

A three year B.Sc.(Hons) course in Speech pathology and audiology started in 1986, is functioning smoothly. The students receive training under the departmental staff which includes the Faculty, Speech pathologists, Special therapists and Audiologist of the Rehabilitation unit (RUAS). Departments viz Paediatrics, Neurology, Psychiatry & Biostatics have extended their generous help.

Continuing Medical Education

Prof. Kacker was invited to participate in the symposia on 'Cochlear Implant' at Ali Yaver Institute, Bombay (Aug.88), 'Prevention of deafness' in Srinagar (Sept.88), Prevention of deafness at Chandigarh (February 89), Neuro-Otology workshop in Calcutta (Feb.89), and on 'current developments in prevention of deafness and cochlear implant's' in Bombay (May 88); gave a guest lectures on 'Tympanoplasty' at Trivandrum (May, 88) and on 'Allergic rhinitis- a therapeutic challenge' at New Delhi (March, 89).

Dr. Ghosh was invited for guest lectures on 'Cochlear Implants' in a national symposium in Biomechanics held in I.I.T., New Delhi (Dec. 88) and on Otoneurology and 'Endolymphatic Sac Surgery' at Patna (Nov. 88).

Dr. Deka presented his work on ABER in infants and children in the symposium on 'Deafness', at P.G.I.Chandigarh (March 89); spoke on Brainstem evoked potentials in the 2nd National course in Neurobiology for post-graduates at AIIMS, (Nov. 88).

Dr.S.Bahadur organized workshops on 'Cancers of oral cavity, oropharynx and salivary glands (Oct. 1988), at AIIMS, and on 'Cancers of the head and neck' in National Medical College, Calcutta (Dec.'88). He was invited to participate in symposium on 'cancers of the head and neck' at MAMC, New Delhi (Dec. 88) and on 'Cancers' at AIIMS (Sept. 88)

Dr.S.K.Kacker and Dr. Vijayaluxmi arranged a 2 week workshop on 'Kostic classification of the hearing impaired and methodology of rehabilitation'.

RESEARCH

Research Completed

Role of functional neck dissection in metastatic neck node

A prospective study was carried out to compare the post-operative complications, and recurrence rate, following radical neck dissection (RND) and functional neck dissection (FND) 30 successive cases who needed neck dissection for the management of palpable metastatic neck nodes from head and neck cancers, were taken up for the study. 20 cases underwent RND while 10 cases underwent FND.

There was no difference in the complication rate following FND and RND. The FND procedure, took on an average slightly less time than RND, with a slightly less blood loss, but the difference was not

significant. The immediate, as well as late shoulder function was significantly better in the cases which underwent FND, compared with those who underwent RND. 90% of those who underwent FND, had a good preservation of shoulder function, 25% of RND patients had a severe shoulder syndrome, which persisted in 10% of the cases. The rest had a moderate impairment of shoulder function. The younger patients under going RND had a slightly better recovery of shoulder function in the long run. In those patients who underwent RND on one side, and FND on the other, shoulder function was much better on the side which underwent FND.

The patients following FND had a slightly higher recurrence rate than those who underwent RND, both in the ipsilateral neck (40% vs 30%) and overall (60% vs 50%). The disease free survival was also slightly less for FND compared with RND (30% vs 35%). The differences were not statistically significant. For N_1 stage, there was no difference in the ipsilateral (28%) as well as overall recurrence rate (43%) between RND and FND, while for N_2 stage, the FND cases had a higher ipsilateral (66%) and overall (100%) recurrence rate, than RND (28%) and (57%). The recurrence rates, overall were higher for N_2 stage than N_1 (40%) vs (28%).

Open rhinoplasty for correction of deformities of the nasal dorsum.

Thirty patients of nasal dorsum deformity who underwent decortication rhinoplasty were compared with a similar group of another thirty patients undergoing conventional closed technique rhinoplasty. Most of the patients (70%) presented primarily for cosmetic reasons while 30% had additional functional problems. Etiologically, 50% of patients had post-traumatic nasal deformity and 25% a developmental defect. The remaining 25% had a developmental abnormality with superimposed trauma and or infection.

The various cosmetic problems dealt with were: 1) Saddle nose (14 cases), (2) Crooked nose (10 cases) (3) Broad/Bulbous tip (4 cases) (4) nasal hump (1 case). The majority of patients seeking rhinoplastic surgery

were in the adolescent or early adult age group (90%). A third of the patients had undergone septal surgery. 6% of these were corrected by separating the medial crurae (open or decortication approach) and 4 cases via a separate classical caudal septal incision. 5 patients underwent revision rhinoplasty.

A 90% success rate (aesthetic restoration of nasal profile and alleviation of functional symptoms) was observed at follow up varying from one month to 18 months.

Auditory & vestibular function in post head injury patients:

34 patients underwent auditory brainstem evoke response (ABER) and ENG . Damage at various levels of auditory nerve and brainstem pathways were seen at ABER. Both ABER and ENG showed endorgan retrocochlear and brainstem findings thereby highlighting injury to different levels of statoacoustic subsystem.

Role of CT scan in unilateral sensorineural hearing loss. (Otorhino, Rad. Diag)

Bronchoscopic and clinico-radiological evaluation of lung collapse in paediatric age group. (Pediat, Otorhino)

Research Continuing

Endoscopy of the nose and the maxillary antrum in chronic maxillary sinusitis: (CMS)

CMS affects the mucosal lining of the nose and the antrum. We have studied 40 cases (age 15 to 60 years). The following were the clinical presentations; headache (26 pts.) with obstruction (24 pts.) nasal discharge (20 pts.) with associated symptoms like sneezing, post nasal drip, epistaxis, throat irritation (11 pts.) Clinical findings included the following : nasal discharge 16/40 pts.; mucosal congestion 14/40; DNS 15/40; turbinate hypertrophy 25/40, polyps 7/40. Throat congestion, post nasal drip and granulations

were found in 14 pts. Investigations included an X-ray PNS and the findings were as follows: thickened mucosa- 4 pts; hazy PNS- 18 pts; polyp in the antrum 5 pts; In the remaining 12 patients X-rays were normal. C.T. scan was carried out in 4 patients.

On comparison of the X-rays and the endoscopy findings of the maxillary antrum it was found that minute details cannot be picked up by X-rays. The detailed anatomical changes due to inflammation can be studied better by means of endoscopy. A number of patients had positive findings endoscopically whereas the X-ray revealed normal antrum. Findings on endoscopy were congested mucosa with polypoidal changes; fibrous septa and frank polyp.

Total septal reconstruction using decortication technique:

11 cases done by decortication technique were compared with closed techniques regarding impairment in patients symptoms and post operative complications. None of the cases has so far shown any complication. In comparison with closed technique of septoplasty better results have been obtained as regards obstruction to air flow and other symptoms.

Selective auditory filter amplification project. (SAFA)

Management of deaf children is a challenging problem facing the physician. In order to further improve the quality of hearing input for such patients, an attempt has been made to develop a more refined aid. An evaluation of the speech testing tools has been carried out. Kostic and Mitter articulation test has been evaluated. A picture word articulation test in Hindi has been developed and its standardization is in progress. Inventory for assessment of articulation status of hearing impaired children was developed and is currently in use. The objective voice analysis of the adult deaf patients was carried out in collaboration with CEERI, New Delhi.

Deafness prevention programme.

The deptt. of Otolaryngology was chosen as the apex centre, on recommendation of WHO to carry out a feasibility study for development of a module for primary and secondary prevention of hearing impairment in rural areas. The principal strategy of the programme funded by DST is the integration of activities in areas of prevention and correction of hearing impairment with existing programme of health and development through a primary health care approach.

In an earlier phase, screening of sample population in Mehrauli and Alipur areas (experimental and control areas respectively) was carried out for prevalence of deafness. The health education material was prepared and distributed through primary health workers. Teachers in the local schools were trained, drug distribution for prompt treatment of upper respiratory infection was started. Baseline survey has been completed in both control and experimental areas. Health education programme beginning from distribution of posters, booklets (better ear care), staging the video shows has been carried out intensively.

Transethmoidal optic nerve decompression in post traumatic visual loss (Otorhino, NSC)

Prophylactic antibiotics in head and neck cancer surgery (Otorhino, Microbiol)

Role of CT scan in endolymphatic sac surgery (Otorhino, Rad. Diag)

Role of combined therapy of irradiation and surgery in advanced cancers of the head and neck (Otorhino, IRCH)

New Research

1. To assess the role of nasal endoscopy
2. Role of 'Hot caloric test' in vertiginous patients.

3. Fabrication of cochlear implants in collaboration with I.I.T., New Delhi.
4. Revascularisation of inner ear for profound sensorineural deafness.
5. Laryngotracheal stenosis.
6. Intranasal endoscopic ethmoidal polyp surgery.

AWARDS AND EVENTS

Distinction Awards, Honours

Dr. P. Ghosh was presented the Hemant Bala Bhagaji award (1989). and a Silver medal by the Bihar branch of the Association of Otolaryngologist of India, 1988.

Dr. S. Bahadur delivered the Maharashtra State annual guest oration on 'Current Concepts in head and neck surgery' in Oct. '88 at Kolhapur.

Significant Events

Prof. Kacker visited Kenya on an invitation for two weeks in October 1988 and conducted a series of teaching exercises and camps in different parts of the country. He performed several ear operations on patients during his stay. Dr. Kacker and Dr. Vijayalaxmi visited Belgrade in Sept. 1988.

Dr. Deka was elected as the General Secretary of the Neuro-Otological and Equilibrimetric Society of India in January 1989.

Dr. S. Bahadur presented a paper on 'Role of combined therapy in advanced head and neck cancers', in the 4th Asean congress of Otorhinolaryngology and Head and Neck surgery at Singapore in March 1989.

HOSPITAL SERVICES

Clinices:

1. Vertigo
2. Andiology
3. Base of skull
4. Head and neck tumour- Twice a week
5. Rhinology
6. Speech rehabilitation

Special investigations:

Audiological

Audiometry and special tests	12630 +	1365
Acoustic Impedance	658	
Bekesy	81	
BERA	135	
E.N.G.	812	

Surgical operations:

Major	863
Minor	21,134

Community Service and Education

The video cassettes/films and slides etc. prepared by the deptt. on 'Prevention of deafness', have been shown widely in rural areas around Delhi to highlight the problem and suggesting simple precautions to be taken for the ear care. Deptt. provides facilities for treatment for ear, nose and throat diseases at Ballabgarh. One senior resident has been posted for this purpose and the facilities for routine ENT surgical procedures are now available at Ballabgarh.

PUBLICATIONS

1. Deka, R.C. Facial palsy and mastoid surgery. Ear, Nose & Throat Journal (USA) 1988; 67: 531-535.

2. Deka, R.C. Augmentation Rhinoplasty Pak. J. Otolaryngology 1988; 4: 128-131.
3. Dev, A., Ghosh, P., Deka, R.C. Acquired tracheoesophageal fistula. J. Laryng. Otol. 1988; 102: 378-379.
4. Kacker, S.K., Deka, R.C., Sharma, R., Vijayalakshmi, Common defects in Hearing aids. Ind. J. Otolaryngology 1989; 41: 34-36.
5. Kumar, S., Kochhar, L.K., Deka, R.C., Primary tuberculosis of Mandible - A case report Stomatologica India. 1988; 2: 96-98.
6. Tandon, D.A., Bahadur, S., Kacker, S.K. Nasopharyngeal angiofibroma A ten year perspective. Journal of Laryngology and Otology 1988; 102: 805-809.
7. Tandon, D.A., Bahaddur, S., Kacker, S.K. Surgical approaches in angiofibroma. Indian Journal of Otolaryngology 1988; 40: 91-95.
8. Tandon, D.A., Deka, R.C. Neurofibromas of the maxillary sinus 1988; 40:28-29.

Collaborative publications	9
Papers presented at conferences	15
Papers accepted for publication	5

Chapter 6.31

PEDIATRICS

FACULTY

Professor and Head	O.P. Ghai
Professor	M. Singh
Additional Professors	I.C.Verma
	R.N.Srivastava
	V.Seth
	V.Kalra
	V.P.Choudhary
Associate Professors	M.K.Bhan
	A.Chetty
Assistant Professors	L.S.Arya
	P.S.N.Menon
	V.K.Paul
	N.K.Arora

Dr.O.P.Ghai retired in 'April, 1988 and Dr.M. Singh assumed charge of Head of The department on May 1, 1988. Dr.I.C.Verma, Dr.R.N.Srivastava and Dr.V.Seth were promoted as Professors. Dr. V.P. Chaudhary has left the deptt. to join the newly created department of Hematology.

EDUCATION

Undergraduate

The learning objectives for students during clinical postings at various semester levels have been formulated and they are circulated to them during their clinical clerkship. The skills and knowledge expected to be acquired and learnt at the conclusion of each clinical posting has been clearly defined. The end)semester examination at each level has been partially structured and objectivised. They are evaluated for their day to day performance, and skills to carry out simple procedures and evaluation of growth and development, etc. Practical tutorials have been organized for the undergraduate students during their 6th and 8th semester postings. The objectives of training of interns in Pediatrics have also been outlined.

Postgraduate

The audit to assess quality of patient care services has been conducted regularly once a week. The activity comprises of mortality reviews as well as evaluation of other aspects of patient care (e.g. drug usage, logistic difficulties, functioning of intensive care unit etc). The presentations are subjected to peer critique and faculty evaluation.

Continuing Medical Education

The Department organized following workshops/seminars at AIIMS during 1988-89.

1. National Workshop on Neonatal Nomenclature and Data Collection under the auspices of National Neonatology Forum during August 1988.

2. International workshop on Pediatric Emergencies in August 1988.
3. Indo-US workshop on recent advances in Pediatrics during October 1988.
4. Inservice training workshop for trainees, as a part of Indian Medical Association ORT Programme sponsored by Ministry of Health and WHO.
5. International Pediatric Update, December, 1988.
6. Indo-US CME program and workshop on Pediatric Emergency Care in collaboration with the Department of Ambulatory Pediatrics, University of Oklahoma, USA.

In-service trainees

Fourteen undergraduates and 4 postgraduate students from foreign countries including USA, UK, West Germany, Switzerland and Colombo took elective training in the department of Pediatrics for a varying period between 2 weeks to 2 months. In addition, four faculty members and 4 postgraduate students from different medical colleges in India received in-service training in Neonatology for a period of 1 to 6 months. One consultant received specialized training in Pediatric Nephrology.

Dr. Meharban Singh: Guest oration, UP Branch of IAP on "The Art of Pediatric Diagnosis" in April 1988 at Dehradun.; "Monitoring of morbidity and mortality", and "monitoring for Perinatal asphyxia in a hospital" at a National Seminar on Neonatal Monitoring held in July 1988 at Indore.; "Merits and Demerits of drugs in hands of grass root level workers" at a National Seminar on Essential Drugs in Primary Health Care at NIPCCD in Sept. 1988.; "Resuscitation of an asphyxiated newborn" during Leadership Training Course for Nurses held at Srinagar in September 1988.; "Immunization and vaccination programmes) their strengths and limitations" in a National Workshop on Traditional Medicine and Immunology organised by Technology

Mission on Immunization on September 1988 at Ahmedabad.; "Asphyxia in Indian context" at Annual meeting of IAP held at Jodhpur in October 1988.; "Organisation of community neonatal services in rural setup" and convened a symposium on Neonatal Emergencies at Annual conference of IAP held at Jodhpur in October 1988.; "Leadership development in Neonatal nursing" during National Workshop on Neonatal Nursing held in October 1988 at Bombay.; "Evaluation and management of birth asphyxia" at a National Workshop on Strategies to Manage Birth Aasphyxia held at Calcutta in Nov., 1988.; Guest Lecture on "common neonatal problems" delivered at Medical College, Ahmedabad.; "Mothers role in the care of normal newborn babies" at a National Workshop held at Madras in Dec., 1988.; "Perinatal asphyxia" at an International workshop held at AIIMS in Dec., 1988.; Strategies to reduce incidence of cerebral palsy at NIPCCD, Delhi in January 1989.; "Current perinatal problems in developing countries" and moderated a panel discussion on "present status of perinatal morbidity and mortality-urban and rural" during WHO workshop on Maternal and Perinatal morbidity and mortality organised in Feb. 1989 at Calcutta.; "Perinatal infections and infant mortality" at a workshop on perinatal determinants of child survival organised by ICMR in Feb. 1989.; "Research priorities in perinatology" and "pathophysiological aspects and monitoring of birth asphyxia" during National Perinatology Conference February, 1989 at Pune.; Panal discussion on Life Threatening Infections-Perceptions, Problems and new directions at Hotel Taj Palace New Delhi in March 1989.

Dr. I. C. Verma delivered guest lectures on "The frontiers of fetal diagnosis an Indian perspective" in the C M E on Reproductive Endocrinology and safe Motherhood at Delhi in September, 1988.; "A clinical approach to malformed child" and "Fragile X Syndrome-an update"; at the meeting of Genetics Chapter of the Indian Academy of Pediatrics in September, 1988 at Jodhpur. International Workshop on Recent Advances in Pediatrics held at AIIMS, in October, 1988. "Genetic Counselling" at the International Pediatric Update held at AIIMS, in December, 1988. Extension lecture entitled

"Genetics in Medicine" at the Department of Pediatrics, Aligarh Muslim University, Aligarh. Inter-regional Workshop on the "Prevention of asphyxia in the community" organised by Commonwealth Association for Mental Handicap and Development Disabilities and WHO in Delhi in April, 1988. First National Conference on "Orofacial Clefts" in Madras in September, 1988. "Prenatal diagnosis of congenital malformations" and "Genetic studies in intersex disorders" at the International Workshop on Recent Advances in Neonatal Surgery and Intersex Disorders held at AIIMS, March, 1989. "Pathophysiology of sexual differentiation" at the National Symposium and Workshop on Pediatric Endocrinology at Bombay in February, 1989. "Diabetes Mellitus in children in India" at the International Seminar on Childhood Diabetes in Singapore (Nov. 1988) organised by the International Study Group of Diabetes.

Dr.R.N.Srivastava : "Hemolytic Uremic Syndrome" lecture at CME program at 1st annual meeting of society of Organ Transplantation at Ahmedabad. "Management of nephrotic syndrome" at annual conference of Steel Medical Officers at Bokaro.; "Management of nephrotic syndrome" and "Hemolytic uremic syndrome" lectures at Pediatric Nephrology symposium at Nagpur.; was convenor of 3rd Annual Meeting of Indian Pediatric Nephrology Group at Jodhpur, and gave a lecture on "urinary tract infections".

Dr.V.Seth : "Immunology of BCG" in the National level Workshop for review of Immunization Practices in Children organized by Delhi Branch of Indian Academy of Pediatrics.; Nutritional management in severe PEM in an Update in Clinical Nutrition held at AIIMS.; Participated as a resource person in the National Workshop on Development Norms of Children organized by National Institute of Public Cooperation and Child Development, (NIPCCD), New Delhi.; "Nutrition and Immune Response" in a symposium on Recent Advances in Allergy & Immunology at the Department of Pediatrics, at PGIMER, Chandigarh.; Participated in a National Workshop on "Towards a National Nutrition Policy" at NIPCCD New Delhi.

Dr.V. Kalra Viral hemorrhagic fever in International Pediatric Update held at AIIMS, Dec. 29)31, 1988.; "Problem of Mental Handicap" in workshop on "Formulation of Media Strategies for Handicapped Children" organized by the Ministry of Social Welfare. National Seminar on "Reducing incidence of Cerebral palsy in Children" organised by NIPCCD in Jan. 1989. "Current development in Medical Education" seminar held at AIIMS in December 1988 and Jan. 1989.; "Educational Science and Technology for teachers of health professionals" Workshop organized by MAMC in August 1988.; "Infections of CNS and pitfalls and controversies in the diagnosis of meningoencephalitis" and "Management of Neonatal Seizures" in the 25th Annual Conference of the Indian Academy of Pediatrics, Jodhpur.; Symposium on "Neuro-Ophthalmology organized by the R.P.Center. "Febrile Convulsions" in Neurology Update organized by the Department of Neurology, AIIMS. "Peripheral neuropathies in childhood", in update on "Neuromuscular disorders in infancy and childhood" at NIMHANS in Bangalore Jan. 1988.

Dr.V.P.Choudhry: "Advances in the management of hemophilia in an Update in Pediatric Hematology and Oncology.; Chaired a symposium on the management of leukemias in the 25th Annual Conference of Indian Academy of Pediatrics.; "Nutritional anemia" in 29th State Annual Conference of MP Branch of IAP at Jagdalpur in Jan. 1989. Dr.Choudhry participated in the Conference of Indian Society of Hematology and transfusion at Baroda in December, 1988.; First National Workshop on Neonatal Hematology Oncology and symposium on "Recent Advances in the management of hematological disorder in childhood" Bombay June, 1988.

Dr.M.K.Bhan : "Establishing an ORT Unit" at a Workshop organised by Catholic Hospital Association of India; "Development of an improved ORS" at the national meeting of IAP 1988.; "Role of brush border effacing E.Coli in childhood diarrhea" at Indo)UK symposium at Calcutta.

Dr.L.S.Arya: "Splenomegaly in childhood acute lymphoblastic leukemia" during remission; Intravenous

mehtyl prednisolone therapy in chronic ITP and chaired a session during 29th Annual Conference of Indian Society of Hematology and Blood Transfusion held at Baroda in Dec. 1988.; "Acute Lymphoblastic Leukemias in children in India and its management at A.I.I.M.S." in the V Biennial conference of Indian Association of Cancer Chemotherapists held at Bombay in Feb. 1989.

Dr.P.S.N.Menon "Growth hormone deficiency", in Short Stature : Approach to Evaluation and Management" 25th Annual Conference of Indian Academy of Pediatrics held at Jodhpur in October, 1988.; "Female pseudohermaphroditism", "Intersex Disorders in Children" in the National Conference of the Association of Surgeons of India at New Delhi in December, 1988.; "Intersex disorders" at the International Pediatric Update at New Delhi in December 1988.; "Clinical approach to a child with ambiguous genitalia" at the National Symposium and Workshop on Pediatric Update at New Delhi in December 1988.; "Clinical approach to a child with ambiguous genitalia" at the National Symposium and Workshop on Pediatric Endocrinology held at Bombay in February, 1989.; "Female pseudohermaphroditism" and "Experience of congenital adrenal hyperplasia at intersex clinic at AIIMS" at the International Workshop on Recent advances in Pediatric Surgery and Intersex Disorders at New Delhi in March 1989.; "Profile of 'thyroid disorders in a pediatric clinic" at the International Symposium on Environment, Genetics and thyroid Disorders" at New Delhi in March, 1989 under the auspices of Thyroid Association of India.; participated in a workshop on "Educational Planning and Examinations" organized by the Dean, AIIMS at Shimla, Oct. 1988 and; Workshop on "Evaluation and assessment in undergraduate medical education" in December, 1988.

Dr. V.K. Paul: National Workshop on Neonatal Monitoring July, 1988, Indore.; National Perinatology Conference, Feb, 1989, Pune.; National Workshop on Infant Mortality and Fertility, June 1988.; National Workshop on Neonatal Nomenclature and Data Collection, Delhi, August, 1988.; IMACGP National Conference on General Practice, AIIMS, August 1988.

Dr. N.K. Arora: "Modern Management of Diarrhea" at a workshop organised by Catholic Hospital Association; "Advances in the treatment of diarrhea" at a seminar for General Practitioners held at New Delhi.

The following papers were presented by the research fellows of the department: The effect of malnutrition and morbidity on Physical growth of preschool children in urban slums of Delhi.; Construction of Growth Reference standards of children for Developing Countries in the Sixth Annual Convention of Indian Society for Medical Statistics and National Seminar on Statistics in Medicine, Health and Nutrition held at NIN, Hyderabad.; Hepatic toxicity in relation to acetylation phenotype in childhood tuberculosis.; Pharmacokinetics of Aspirin in Juvenile Chronic Arthritis in the 25th National Conference of IAP in Jodhpur.; Short course chemotherapy regimens in the treatment of TBM in children in the 28th Interscience Conference on Antimicrobials and Chemotherapy held at Los Angeles.

RESEARCH

Research Completed

Reduction in sepsis related) neonatal mortality

The neonatal mortality rate per thousand live births dropped from 36.6 in 1985 to 23.9 in 1986. Neonatal sepsis ranked as number 2 as a cause of neonatal mortality in 1985, while it dropped to rank 4 (even lower than major malformations) in 1986. The decline in the sepsis related neonatal mortality was due to reduced incidence of sepsis (34.2 and 18.8 per 1000 live births during 1985 and 1986 respectively) and improved survival (case fatality rates of 24.6% and 17.7% in 1985 and 1986 respectively). The strategies which reduced the incidence of nosocomial infections included decongestion of the nursery, discontinuation of use of heparinised saline for flushing intravenous

lines and routine use of intravenous cannulas instead of metallic scalp vein needles.

Adrenocortical response in children with frequently relapsing nephrotic syndrome (RRNS) and its relationship with therapeutic response to (a) long term, low dose prednisolone and (b) levamisole.

Thirty patients with corticosteroid responsive frequently relapsing nephrotic syndrome were evaluated for adrenocortical response with a 2 hour ACTH stimulation test at the start of a relapse, and then twice at 6 months intervals. After the initial test a remission was achieved with prednisolone therapy. Thereafter 12 patients were given prednisolone 0.25 mg/kg daily for 18 months (low dose prednisolone, L.D.P.) and 12 patients levamisole (5 mg/kg on alternate days) for 12 weeks. Relapses occurring during the follow up period were treated with a 6 week course of prednisolone.

Adrenocortical response was initially impaired in 10 of 30 patients. The response was not related to previous prednisolone therapy. Subsequent tests showed a normal response except in two cases. The number of relapses on L.D.P. treatment was significantly less than during the previous year. In comparison the levamisole treatment was much less beneficial. The beneficial effect of L.D.P. may not be related to adrenocortical function.

Serodiagnosis of tuberculosis by ELISA

The enzyme linked immunosorbent assay (ELISA) using purified protein derivative of tuberculin (PPD), (Weybridge, London) was studied in 86 patients suffering from pulmonary tuberculosis and compared with 58 healthy individuals. Patients suffering from tuberculosis consisted of AFB +ve adults (37), children suffering from pulmonary primary complex (32), progressive primary disease (6) and tubercular lymphadenitis (11). The mean ELISA value in different types of tuberculous patients before therapy was significantly ($p < 0.001$) higher as compared to controls.

After 3 months of treatment, there was a significant decrease in antibody level. With the use of pure antigen, the potential of this test for diagnosis needs to be further evaluated.

Hepatic function and acetylator phenotype in tuberculosis in children

Sixty six children suffering from pulmonary primary complex were investigated for evidence of hepatotoxicity (clinical and biochemical), in relation to acetylator phenotype and dose of rifampicin (10 and 12 mg/kg respectively).

Acetylator phenotype was determined by sulphadimidine acetylation test in urine. Estimation of the levels of SGOT and SGPT were determined before therapy, and at monthly intervals for the first three months, and then at three monthly intervals for one year. There was no biochemical evidence of hepatic derangement in relation to acetylator status. Mild degree of malnutrition does not predispose the child to increased hepatotoxicity.

Construction of Growth Reference Standards for Developing Countries

A cross sectional sample of 3000 children (53% Males, 47% females) in the age group of birth to 10 years from urban slums of Delhi were examined for weight and height. Comparison of percentiles of weight and height with NCHS and ICMR standards showed that the 75th percentiles of weight and height of the present study sample were comparable with 80% and 90% of 50th percentile of NCHS and ICMR standards respectively. Hence upper 25% of the sample arranged in ascending order of magnitude was used for the construction of reference standards of weight and height. Comparison of percentiles drawn from the top 25% of the sample demonstrated that 50th percentile of the present study corresponded to 80% of 50th percentile of NCHS for

weight and 90% of 50th percentile of NCHS of the height for both boys and girls. Also the 50th percentile of the present study is comparable with 50th percentile of ICMR for weight and height for both the sexes.

Immunology of Juvenile Chronic Arthritis

Rheumatoid factor (RF) was positive in 6% of systemic onset JCA and in 1 child out of 74 in pauciarticular type. Maximum positivity (40%) was seen in the polyarticular type. No child tested was positive in the other two groups. Antinuclear antibodies showed a very low positivity in all cases. CRP was maximally raised in systemic onset disease with minimum values in pauciarticular type. Its value correlated significantly with disease activity in all subgroups of JCA ($p < 0.005$). Immunoglobulins IgG and IgA were significantly increased in all types with maximum values in systemic onset type. They also correlated with the activity of the disease. C3 levels were highest in unclassifiable and lowest in pauciarticular group ($p < 0.005$). It also correlated with the disease activity.

The effect of malnutrition and morbidity on physical growth of pre-school children in urban slums of Delhi

In a sample of 1861 pre-school children the mean height differed significantly between normal, grade I and II malnourished children. The malnourished children were further classified according to their height. Those below 90% of the 50th percentile of NCHS were labelled as wasted and stunted. Normally nourished children had significantly higher heights ($p < 0.05$) than wasting associated with stunting group. Morbidity pattern revealed that duration of illness was significantly ($p < 0.05$) more in grade II and III malnourished children and the wasting associated with stunting group, but the number of episodes of illness were comparable in all the groups.

Adherent E.coli as a cause of prolonged diarrhea in hospitalised out patients population

We had previously reported association between enteroaggregative E.coli and a prolonged diarrhea in children in a community. As it was the first published report on this association, we performed a prospective study in a hospital setting to confirm the association between aggregative E. coli and persistent diarrhea. A total of 380 children attending out) patients department with non dysenteric, acute diarrhea were followed up to determine the natural course of illness without prescribing any antibiotic therapy. The excretion of entero aggregative E. coli was 34% in episodes that lasted 14 days as compared to 9% in episodes of >14 days duration ($p < 0.05$). Thus, this study confirms the etiological importance of enteroaggregative E. coli in prolonged diarrhea in children.

Protective efficacy of neonatal rotavirus (RV) infection against subsequent rotavirus infection

The post neonatal rotavirus infection rates were compared in 108 neonates who experienced a neonatal infection(I) and in 67 neonates who did not experience similar infection(NI). The incidence of RV diarrhea in the two groups was 0.18 and 0.25 episodes per child per year ($p > 0.05$). The severity score of diarrhea was also higher in the infected than in the non infected group but the difference was not significant. These data indicate that protection by neonatal infections is either serotype specific or there is no protection. The serotype specific protection is being determined.

Epidemiological risk factors of persistent diarrhea

We performed nested case control studies in a prospectively followed cohort of 963 children to examine risk factors of persistent diarrhea. The first persistent episodes (cases) were compared to the two sets of age matched contemporary controls, the first being children with acute diarrhea and the second, children without diarrhea. Logistic regression analysis

was performed to control for the confounders. Antecedent malnutrition, recent diarrheal morbidity, recent weaning on artificial milk, use of non adapted artificial milks, initial excretion of entero aggregative E. coli and higher initial stool frequency were found to be independently associated with an increased risk of persistent diarrhea. Reduction in malnutrition is likely to significantly reduce incidence of persistent diarrhea in children.

Significance of splenomegaly in childhood acute lymphoblastic leukemia (ALL) during remission

During January 1984, through July, 1988, a total of 98 children with ALL were followed up for varying periods. In 19 children splenomegaly persisted or reappeared after successful induction remission was achieved. The children were treated with a standard AIIMS protocol. Splenomegaly occurred following malaria in 2 cases. Splenic enlargement was observed following pulmonary infection in 3 and hepatitis in 2 children. Australia antigen was positive in 7 children. No definite cause could be determined in the remaining 5 cases. The isolated finding of splenomegaly in children with ALL in hematological remission should not be considered as an evidence of relapse. Efforts should be made to detect the other causes like malaria, hepatitis, pulmonary infections etc.

Auditory brainstem evoked responses (ABER) in normal neonates and infants (Pediat. and NSC)

Role of auditory brainstem evoked responses in the management of neonatal hyperbilirubinemia (Pediat. and NSC)

Echocardiographic assessment of infants born to diabetic mothers (Pediat. and CTC)

Prenatal diagnosis of genetic disease by amniocentesis (Pediat. and Ob. and Gyn.)

Chromosomal studies in repeated abortions (Pediat. and Ob. & Gyn.)

Immunogenetic study of juvenile chronic arthritis(Pediater & Anat)

Clinical presentation of juvenile chronic arthritis
(Pediater and Med)

Plasma salicylate monitoring in juvenile chronic arthritis (Pediat. and Pharmacol)

Acute leukemia in children (Pediat and Hematol)

Induction regimens in ALL (Pediat and Hematol)

Burkitt's Lymphoma in India (Pediat and Hematol)

Characterisation of entero aggregative escherichia coli
(Pediat. and Microbiol)

Role of campylobacter jejuni in childhood diarrhea
(Pediat and Microbiol)

Clinical hematological and immunological profile in childhood acute lymphoblastic leukemia (Pediat. and Hematol)

Bronchoscopic and clinicoradiological evaluation of collapse of lung in pediatric age group(Pediater, ENT, Rad Diag, Anaesth)

Clinical, endocrinological and radiological evaluation of male pseudohermaphroditism (MPH) (Pediat, Pediat Surg and Rad Diag)

Experience concerning female pseudohermaphroditism (FPH) at AIIMS (Pediater, Pediat Surg, Rad Diag)

Research Continuing

IgE immuneresponse and genetic studies in bronchial asthma

Children with intrinsic and extrinsic bronchial asthma are being investigated for their IgE immune

response, as well as their HLA antigen profile. These will be correlated with clinical grade of the disease as well as allergin sensitivity by skin tests.

High resolution chromosome banding (HRB) techniques in children with multiple malformations

Analysing the late prophase and early metaphase chromosomes after HRB procedures enables identification of chromosomal aberrations that may go undetected in routine cytogenetic preparations. 48 cases were screened using HRB methods. The results revealed 9 cases with autosomal anomalies and 2 cases with sex chromosomal anomalies. Autosomal anomalies identified included one case with 46,XX,t(14:21) karyotype, one case of 46/xx/46 xx,18,+mar, one case of 46, xx, 2q+, one case of Down syndrome with 47,x isoy (q) +21 and one case of 46, XY,8q+. Sex chromosomal anomalies identified were 45,x/46, xx with low mosaicism of the abnormal cell line in both the cases.

Investigation of demographic decline among primitive tribal communities in Andaman and Nicobar islands

In view of the declining population of the primitive tribal communities) Onges, Andamanese, Jarawas) of Andaman islands and Shompens of Great Nicobar Islands, Planning Commission, has sanctioned a project to study the biological causes of the demographic decline. Demographic data has been collected and the rate of fertility and reproduction has been worked out. Blood was collected for the estimation of Hb, PCV, red blood count, V.D.R.L. and RPR test for syphilis, antibodies for measles, rubella and herpes simplex viruses, gonadal hormonal assays such as F.S.H., L.H. and testosterone in males and estrogens, progesterone and prolactin in females. Routine biochemical tests and amnioacid chromatography were done from urine. Results are being analysed.

Prevention and management of mental handicap in underprivileged communities

The essential thrust of the study is to evolve replicable strategies for the prevention and management of mental handicap in underprivileged communities using local resources to ensure a better quality of life for them. Approaches for the prevention of mental handicap will comprise: (a) identifying risk factors for brain damage in the fetus and the newborn; (b) providing essential care before, at and after birth; (c) updating the skills of the traditional birth attendants; (d) improving knowledge and awareness of the mothers; (e) developing computerized data base for monitoring the above. About 400 families (about 1600 children) have been screened by field workers using a questionnaire and about 8% were detected to have mental retardation. These children are given stimulation and educational/vocational training by a special educator.

Studies on the origin of the extra chromosome 21 in Down syndrome

This study comprises collection of epidemiologic data, and in vitro experiments on children with Down syndrome and their parents. It aims to identify the factors which predispose couples to nondisjunction in their meiotic chromosomes. The spindle is examined in peripheral blood cultures stimulated with phytohemagglutinin, as well as blood which has been exposed to measured doses of radiation and hormones. Ten couples and their children have been studied so far.

Chromosomal fragile sites in nonspecific mental retardation

Fifty children with idiopathic mental retardation (normal routine chromosomal and biochemical screen) or with features of fragile X syndrome are being studied for the presence of fragile sites. Culture medium deficient in folic acid with added methotrexate and fluorodeoxy uridine are used to induce fragility. Eleven of 50 children have shown fragile X syndrome.

Psychosocial development at adolescence

A longitudinal study in urban slums to assess the psychosexual development of children during adolescence is being conducted. Two age points (11)12 and 13)14 years) assessment of intellectual development and personality adjustment along with physical growth, sexual maturity rating and osseous development (Tanner's TW2 method) is being done.

Epidemiologic correlates, early clinical features and sequelae of perinatal hypoxia

This ICMR funded study is aimed at determining the incidence and major antecedents of birth asphyxia, to evaluate the utility of different parameters of fetal hypoxia and prophylactic utility of phenobarbitone therapy. A total of 60/878 live births had birth asphyxia (severe in 27, moderate in 33). There were more preterm (58%) neonates than term (42%). Twenty neonates were enrolled as controls. Early morbidity included respiratory distress in 22 (36.6%), hypoxic ischemic encephalopathy in 9 (15.0%), seizures/apnea in 9 (15.0%), intraventricular hemorrhage in 11 (8.3%) and hypoglycemia in 12 (20.0%). Thirty five percent cases died in the neonatal period. The mortality rate was 66.6% in the severe and 9.9% in the moderate group. Mortality was remarkably higher in preterm (54.3%) as compared to term (8.0%) asphyxiated newborns. Of the 31 survivors, 16 completed 3 months of age and were called for the first development assessment. The social, motor and mental development indices reveal that 3 (25.0%) of the survivors had delayed social development, while all performed reasonably well on the motor and mental scale.

Identification of high risk mothers

1200 pregnant women have been prospectively studied for identification of high risk factors and their effect on fetal and neonatal outcome. The data is being processed for computer analysis.

Assessment of gestation by simple physical criteria

This WHO supported study is aimed at identifying simple physical criteria for assessing gestation in the community. A total of 700 live births were included in the study. After systematic sampling a total of 200 neonates with known gestation were subjected to evaluation of physical criteria. The data is being analysed to generate a simple system of gestation assessment at the grass root level.

Nutrition of low birth weight neonates: utility of fat-fortified, calorie-dense feeds and non-nutritive sucking

During early postnatal period, the prematurely born very low birth weight neonates often do not achieve the desired intrauterine growth rates when fed with the available formula feeds, supplemented with expressed breast milk. This ongoing study (ICMR) is examining the utility of fat fortification of the feeds for achieving better growth and outcome in this population.

Impact of alanine fortification on efficacy of standard oral rehydration solution :

Studies in piglet model showed that enhanced glucose linked sodium absorption is greater when the amino acid alanine is added to the perfusate. The clinical efficacy of alanine fortified and standard ORS is being evaluated in a placebo controlled, double blind study.

Evaluation of yoghurt as a possible milk substitute in lactose deficient states:

Previous studies at AIIMS showed that lactose containing whole milk cannot be used safely as the sole nutrient source in children with persistent diarrhea. Yoghurt, prepared by specific starter bacteria, has 20% lower lactose content as compared to milk and has been found to have intrinsic B-galactosidase activity. This clinical trial is comparing the effect of feeding

yoghurt as compared to milk in persistent diarrhoea as regards stool volumes, diarrheal duration and weight gain.

Myocardial dysfunction in perinatal hypoxia (Pediater, CTC and Biochem)

Sister chromatid exchange (SCE) studies in repeated abortions (Pediat and Ob & Gyne)

Drug level monitoring of anti)tubercular drugs (Pediat. and Pharmacol)

Osseous development at adolescence (Pediater and Rad Diag)

Infections in leukemias (Pediater and Microbiol)

Non Hodgkin lymphoma (Pediater and Path)

Thalassemia major studies (Pediater, Hematol, and CTC)

Randomised controlled trial of oral gentamicin in persistent diarrhea

Characterisation of neonatal RV-AIIMS strain (Pediat., Microbiol)

Oligonucleotide gene probes for detection of toxigenic E. coli directly in fecal smears (Pediat., Microbiol.)

Evaluation of growth hormone profile in children with proportionate short stature (Pediater and Endocrinol)

Experience with HCG in the management of undescended testes in children (Pediat. and Pediat Surg)

New Research

1. Impact of antenatal erythromycin therapy on incidence of low birth weight babies (ICMR)
2. Correlates of bilirubin encephalopathy (ICMR)

3. Epidemiologic correlates of prematurity : A case control study
4. Residual gastric aspirate volumes in sick and healthy preterm infants
5. Hypoglycemia in high risk neonates
6. Evaluation of cytological methods in the diagnosis of extramedullary involvements in acute childhood leukemia
7. Role of antiplatelet associated antibodies in patients with chronic ITP
8. Evaluation of Neuro-psychological abnormalities in patients of ALL following CNS chemoprophylaxis
9. Behavioural and psychological impact of acute leukemia on the child and family
10. Immunological studies with particular reference to lymphocyte subsets in minimal change nephrotic syndrome
11. Incidence of urinary tract infection in infants with unexplained symptoms
12. Value of CT scan in staging of Hodgkin's disease
13. Pattern of fungal infections in acute lymphoblastic leukemia during remission
14. Role of antiplatelet associated antibodies in patients with chronic ITP

AWARDS AND EVENTS

Distinctions, Awards, Honours

Dr. Meharban Singh was conferred the Fellowships of National Academy of Medical Sciences and Indian Academy of Pediatrics.

Dr. Abhay Vats was awarded Sarla Vaishnav Award for best research paper by the Indian Academy of Pediatrics, Delhi Branch.

Significant Events

Dr. Meharban Singh was nominated by IAP as the North Zone Convenor to organise Pediatric Quiz for undergraduate students from all medical colleges in India; invited as a Chief Guest at the Annual Academic Function of Raj Kumari Amrit Kaur College of Nursing, Delhi; Visiting Professor and External examiner to Indira Gandhi Institute of Child Health, Kabul, Afghanistan; Visiting Professor of Al)Arab)Medical University, Benghazi, Libya; Member of working group on Development and Welfare of children, GOI, Planning Commission; Member Working Group on Child Survival Activity, GOI, Ministry of Health and Family Welfare; Convenor for Evaluation of Clinical Research Schemes of AIIMS and Chairman, Curriculum Committee, AIIMS. He discharged the Editorial responsibilities of Bulletin of National Neonatology Forum and was elected president of the National Neonatology Forum.

Dr. I. C. Verma continues to be a member of Council of Biology Editors, USA; European Association of Scientific Editors; American Society of Human Genetics; Secretary of Welfare Association for Mentally Handicapped Children and Editor-in-chief of the Indian Journal of Pediatrics. He was also invited by the ICMR as an Expert to discuss "Use of high dose estrogen and progesterone preparations in clinical practice" at ICMR Head Quarters, and as Visiting Professor at Postgraduate Institute of Medical Education and Research, Chandigarh for one week in February, 1989 to deliver lectures and conduct clinical case conferences.

Dr. R. N. Srivastava attended council meeting of International Pediatric Nephrology Association and Editorial Board Meeting of Pediatric Nephrology at San Antonio, USA. He continues to be the Editor of Indian Pediatrics.

Dr.V.Seth continues to be a member of the Consultative Group on early childhood care and development of UNICEF; Expert group of the National Council of Science Museums of the Govt. of India and acted as a Referee for evaluation of research work submitted for Awards to ICMR. was invited to present papers on effect of morbidity on growth as a determinant of wasting and stunting of preschool children of urban slums in Delhi, India at 5th International Auxology Conference held in June 1988, at Exeter University Exeter Devonshire, UK; and construction of growth norms irrespective of secular trends in developing countries, at 12th International Congress of Anthropological and Ethnological Sciences held in July 1988 at Zagreb, Yugoslavia.

Dr. M.K. Bhan was appointed Chairman of the Global Steering Committee of the WHO for research in diarrheal diseases; served as a member of an International team for evaluation of the research activity of International Centre for Diarrheal Diseases Research, Dhaka; was awarded a third Research Strengthening Grant by WHO as a principal investigator: continued to be Editor, Indian Journal of Pediatrics; served as member of Advisory group on Diarrheal Diseases, Ministry of Health, Govt. of India; was invited as a member of global WHO review committee on Implementation research in diarrheal disease; as international consultant and key note speaker to ICORT held at Washington, U.S.A; and to third NIH rotavirus vaccine review meeting to Bethesda, Maryland, U.S.A.

Dr.P.S.N.Menon was invited by the Sports Authority of India as a member of the medical committee for age verification tests for the National Sports Talent Contest held in October, 1988, at New Delhi. He was member of the organizing committee of the workshop on "Diabetes mellitus in children and youth" organized by the Research Society for Study of Diabetes in India held at Shimla in May 1988 and delivered 3 talks on "Management of diabetes: special problems and emergencies", "Purified and recombinant insulins" and "self home blood glucose monitoring"; was a guest

faculty for the orientation programme for academic counsellors for the newly started Food and Nutrition Diploma course of the Indira Gandhi National Open University in September 1988; member of the organizing committee of the International symposium on "Environment, genetics and thyroid disorders" held at New Delhi in March and chairman of the session on "Thyroid disorders"; invited to deliver a lecture on "Overview of Health situation of the Indian child" at the National Workshop on "Situational analysis of children in India" organized by the National Institute of Public Cooperation and child Development in March, 1989.

Dr.V.K.Paul received a visiting Fellowship for in-service training at University of Illinois at Chicago, USA. He was elected as Member of the National Academy of Medical Sciences. He was nominated on the research committees of the National Institute of Public Cooperation and Child Development (NIPCCD), the Council for Social Development (CSD) and RAK College of Nursing. He continued to be member of the Growth Monitoring Task Force and member Editorial Board of Bulletin of National Neonatology Forum. He was also elected as the Vice President for Technology and National Development (STAND) AIIMS chapter. He organised National Workshop on Neonatal Nomenclature and Data Collection and Indo)US Workshop on Recent Advances in Pediatrics. He also continued to coordinate activities of the AIIMS Poison. Study Circle and was elected as Joint Secretary cum Treasurer of the National Neonatology forum for the years 1989-91.

Visiting Scientists

Dr. Mrs. Veena S. Raleigh from Development of Clinical Epidemiology and Public Health Research Unit, University of Surrey, UK; Dr. Maurice J Mahoney, Professor of Human Genetics at Yale University School of Medicine, New Haven; Professor Svetlana H Limborska from the Institute of Molecular Genetics, Moscow, USSR; Dr.D.Kumar from the Department of Human Genetics at University of Sheffield, UK; Dr.V.Pandurangi from Sheffield, UK Secretary General Commonwealth

Association for Mental Handicap and Development Disabilities; Dr. Raju S.K.Chaganti, Member and Head, Laboratory of Cancer Genetics and Cytogenetics, & Professor of Cell Biology and Genetics at Memorial Sloan Kettering Cancer Centre, New York; Dr. Michael Denton, Head, Division of Molecular Biology in Department of Pathology at Prince of Wales Hospital Sydney, Australia. Dr.T.Vats, Professor of Pediatrics and Section Chief of Pediatric Oncology from University of Kansas, Medical Centre, Kansas City USA visited the department. and gave talks on management of solid tumors, and management of acute lymphoblastic leukemia.

HOSPITAL SERVICES

The neonatal intensive care unit (NICU) facilities have been improved by the introduction of nasal CPAP (continuous positive airway pressure). Neonatal and perinatal mortality rates have significantly declined, the current figures being 23.9 and 33.9 per 1000 live births respectively. Through implementation of vigorous house keeping practices, early diagnosis and rational antimicrobial therapy, the infection related neonatal mortality of 1.6 per 1000 live births is lowest in the country. Consequently the neonatal infections now appear as the least important of all the major causes of newborn deaths-an achievement not documented by any other tertiary care unit in the country.

The pediatric intensive care unit started functioning efficiently by deployment of nursing staff. The central venous pressure is being routinely monitored in critically sick children. The ventilatory facilities have been augmented. Hemodialysis machine has been procured and is likely to be installed soon. Gastrointestinal scopes, both upper and lower, are being done routinely. A survey was conducted to assess the satisfaction/difficulties of patients/attendants admitted to the children medical wards. Most patients were satisfied and their suggestions were implemented to further improve the curative services.

Speciality Clinics

The department is conducting a large number of speciality clinics on every afternoon. The attendance at these clinics during 1988-1989 was as follows:

Genetics clinic	750
Endocrinology clinic	1150
Gastroenterology clinic	1200
Well Baby clinic	2500
High risk neonates clinic	1050
Neurology clinic	1800
Chest clinic	880
Tuberculosis clinic	950
Rheumatology clinic	250
Hematology clinic	1900
Oncology	410

In addition, the department is running a collaborative intersex clinic with pediatric surgery.

Specialized tests

Number done

Acid base parameters and blood gases	940
Auditory-evoked brain stem responses	45
Amnioacidogram	465
Mucopolysaccharide screens	111
Special chemical tests in urine for aminoacids	585
Maternal serum alphafetoproteins	276
Amniotic fluid alpha fetoproteins	62
Serum Alpha-1-antitrypsin	20
Serum ceruloplasmin	35
Leukocyte enzyme assays	145

IgE for cases of nasobronchial allergy	57
Cytogenetic studies	
Peripheral blood culture for chromosomal studies	493
Amniotic fluid cell culture for cytogenetic and biochemical assays	62
Chorionic villi sampling for chromosomal studies	30
Sweat chloride test for cystic fibrosis	41
Skin tests for 32 allergens	47
Pulmonary function tests (Computerized)	88
C-Reactive proteins (CRP)	25
Rheumatoid factor (RF)	25
Plasma salicylate levels	30
Complement C3	25
Serum rifampicin levels	200
Urine rifampicin levels	150
Serum isoniazid levels	200
Urine isoniazid levels	150
ELISA in tuberculosis	150
Antinuclear antibody ANA	30
Immunoglobulins	20

Social and Intellectual Development

Normal infants and preschool children

- Gessell Development Scale	}	
- Sensory Motor Scale	}	
- Vineland Social Maturity Scale	}	400
- Stanford Binet Test (Indian Adaptation by Kulshreshta)	}	

Normal preadolescent and adolescent children

- Malin's Intelligence Scale for Indian Children both verbal and performance components	}	500
- Carl Roger's Personality Adjustment Test		
- Taylor's Children Manifest Anxiety Scale	}	250

Intelligence quotients

Community Services and Education

Dr. Meharban Singh, in his capacity as the President of the National Neonatology Forum, took up

with the Ministry of Health and Family Welfare and the Planning Commission the issues related to the MCH services in the country in order to help prepare Action Plan for better primary perinatal)neonatal care during the VIIIth Plan. In this context he coordinated five National Workshops at different places in the country aimed at bringing out specific recommendations on mothers' role in newborn care, neonatal monitoring, neonatal nursing, perinatal hypoxia and neonatal data collection. He also gave a talk on All India Radio on "Bachon mein Kaposhan se hone wali bimariyan" and participated in a public panel discussion for Rotarians on "perinatal hazards-the critical period" at Pune.

Dr.I.C.Verma has started a small school for children with mental handicap and learning disabilities in the Kalkaji slums.Educational objectives of the school include early stimulation, imparting skills of home training to mothers and special schooling. Low cost educational and play materials are made by the older mentally handicapped children. Pregnant mothers of the mentally retarded children are also monitored. Routine investigations such as urine, sugar, albumin are carried out by field workers, and blood pressure, height and weight are recorded and fundal height is measured.

Dr.R.N.Srivastava gave a public lecture at Jodhpur on "Renal diseases in children, prevention and management" and a talk on Akashvani Jodhpur on the same topic.

Dr. V.Kalra is involved in school health programmes for Carmel Convent and St. Columbas Schools; initiated a study on "Learning disabilities in school children", between the ages of 5 to 10 years in St. Columbas School.

Dr. P.S.N.Menon continued pediatric care and immunization services at 3 field centres at the Ayurvedic dispensary, Babu Park at Kotla)Mubarakpur. Adult literacy centre at Masjid Moth and Mobile health Unit at Rajiv Gandhi Camp behind Jawaharlal Nehru Immunization Programme. Four family welfare camps and

well-baby shows were organized at Masjid Moth, Rajiv Gandhi Camp, Bapu Park and Gautam Nagar during January)February 1989. He also took part in the 47th, 48th and 49th Job Training Courses for Child Development Project Officers of the ICDS scheme for Kerala, Tamil Nadu, Mizoram, Assam, Andhra, West Bengal, Haryana, Rajasthan and Gujarat states of India and short term job training course for Assistant Child Development Project Officers of the ICDS scheme and gave lectures and demonstrations on "Common nutritional deficiency disorders" and "Common childhood diseases" at NIPCCD, new Delhi during November 1988 and March, 1989. He served as the member of the organizing committee and faculty for the "Camp for children and youth with Diabetes" held in RAK Bhawan, Shimla during 24)29 May 1988. He was also involved in the organization of the "Diabetes Awareness" programme at AIIMS and was a member of panel discussion for general public.

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Books

1. Ghai OP, Paul VK. Report of the National Seminar on Rational Drug Therapy in Pediatrics, AIIMS, 1988.
2. Singh M. Medical Emergencies in children. Sagar Publications, New Delhi 1988.

Chapters in Books

1. Verma IC ; Lakshmi NJR. Genetics of orofacial clefts. In : Orofacial Clefts in India. Ed. J.G.Kannapan. Madras. 1988.
2. Verma IC: Epidemiology of congenital malformations in India and the need for their surveillance. In: Workshop on the Epidemiology of Congenital Anomalies. Proc of internat Congr of Human Genetics, 1986. Human Genetics ed. F. Vogel and K. Sperling, Springer)Verlag, Heidelberg, West Germany. 1988 pp 588.
3. Verma IC: Genetic causes of mental retardation. In: Mental Retardation genetics and Ethical Considerations ed. M. Niermeijer and E. Hicks. Bishop Bekkers Foundation, International symposium. Reidal Publishing Co. Amsterdam 1988.

4. Kalra V, Murali MV. Fulminant hepatic failure and hepatic encephalopathy. In: Medical Emergencies in Children. ed. Singh M. Sagar Publications, New Delhi.
5. Deorari AK, Singh M. Emergency Procedures. In: Medical Emergencies in Children. ed. Singh M. Sagar Publication, New Delhi, 1988 pp 328-351.
6. Choudhry VP. Acute renal failure in Emergencies in Children. ed. Singh M, Sagar Publications p 219-228, 1988.
7. Choudhry VP. Advances in the management of hemophilia. In: Current Problems in Pediatric Hematology Oncology, eds. Lokeshwar MR, Krishnamoorthy PN. p 49-54, 1988.
8. Menon PSN. Clinical approach to the diagnosis of ambiguous genitalia. National Symposium and Workshop on Pediatric Endocrinology, Bombay 1989, p 22-25.
9. Menon PSN, Murali MV. Shock. In: Medical Emergencies in Children, ed. Singh M, Sagar Publications, New Delhi, 1988 p 18-27.
10. Paul VK. Animal and insect bites. In: Medical Emergencies in Children. ed. Singh M. Sagar Publications, New Delhi 1988, p 299-313.
11. Paul VK, Singh M. Neonatal Sepsis. In: Medical Emergencies in Children, ed. Singh M. Sagar Publications, New Delhi, 1988.
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Collaborative Research publications	21
Papers presented in scientific meetings	65
Papers accepted for publication	24

Chapter 6.32

PEDIATRIC SURGERY

FACULTY

Professor and Head	M.Rohatgi
Associate Professor	D.K.Mitra
Assistant Professors	D.K.Gupta V.Bhatnagar M.Bajpai

Dr.Mitra joined the department on 1st September, 1988 after his return from IGICH., Kabul where he was deputed as Director under ITEC programme.

EDUCATION

Continuing Medical Education

Dr.M.Rohatgi delivered the following lectures:"Surgical separation of Siamese twins" at B.C.Roy Children's Hospital, Calcutta, May 1988; Surgical separation of thoraco-omphalopagus Siamese twins" at S.S.K.M. Postgraduate Institute, Calcutta,May,1988; "Surgery of intersex disorders"; "Craniosynostosis"; "Hydrocephalus in children", and "Neonatal surgical emergencies", IGICH, Kabul, Afghanistan, June 1988; "Separation of Siamese twins" at Delhi Pediatric Surgery Forum August, 1988; "Care of surgical neonate", at Surgery Update, Maulana Azad Medical College, New Delhi, Sept, 1988; "Surgical techniques of cleft lip repair" at First National Congress on cleft palate and cleft lip and other orofacial anomalies, Madras Sept.,1988; "Craniosynostosis in Children" at Bangalore Surgical Society, Oct.1988; Chairman of symposium on Care of Surgical Neonate in which she spoke on "An overview of

the care of surgical neonate and "Statistical survey of care of surgical neonate at AIIMS" from 1982-1987, at XIV mid term conference of Indian Association of Paediatric Surgeons, 1988, Bangalore. Convenor & chairman of symposium on intersex disorders in children in Paediatric Surgery Section at the Golden Jubilee of the annual conference of Association of Surgeons of India, New Delhi, Dec. 1988- presented 3 papers. (1) Surgery of intersex disorders (2) Mixed gonadal dysgenesis of dysgenetic male pseudohermaphroditism. (3) Introduction of intersex disorders in children in symposium on intersex disorders in children, ASICON, 1988, New Delhi; Chairman on "Antenatal care" session at international workshop on recent advances in Neonatal Surgery and Intersex Disorders March, 1989, New Delhi; "Our experience in the management of Wilm's tumour in the symposium on Paediatric cancer organised by the Oncology section of ASI, at 50th annual conference of ASI, Dec. 1988 New Delhi; "Problems of perinatal complications needing surgical treatment at AIIMS on diaphragmatic hernia and neural tube defects" at W.H.O. workshop on Maternal and Perinatal Morbidity and Mortality, Feb., 1989, Calcutta; "Problems related to mortality and morbidity in surgical neonates"; "Management of total and long segment aganglionosis"; "Male pseudohermaphroditism due to 5 alpha reductase deficiency & androgen insensitivity"; "Mixed gonadal dysgenesis and dysgenetic male pseudohermaphroditism"; "Surgery in intersex disorders" at international workshop on Recent Advances in Neonatal Surgery and Intersex Disorders, March, 1989, AIIMS, New Delhi; Chairman of progress session on "Oesophageal atresia" in the ASICON 1988; Chairman of CME programme on emergency surgery "Preliminary management of neonatal surgical emergencies" at ASICON 1988; Chairman of "Pediatric reconstructive urology" at international symposium on Adult & Pediatric reconstructive urology, New Delhi, Feb. 1989.

Dr.D.K.Mitra gave the following lectures: Long term follow up results in posterior urethral valve in Urology section meeting, ASICON, 1988, New Delhi; Posterior urethral valves - A clinical survey, north

zone conference of International College of Surgeons, New Delhi, 1988; Pre and post operative care- Paediatric surgery update : arranged by Indian Academy of Pediatrics, New Delhi, 1988; Transport of Neonates: CME programme of ASICON, New Delhi, 1988; Posterior urethral valves in the neonates : Symposium in the international workshop on recent advances in Neonatal Surgery and Intersex Disorders, AIIMS, March, 1989.

Dr.D.K.Gupta gave the following lectures on: Preoperative care of the surgical newborn in the C.M.E. programme of the Northern Chapter of Association of Surgeons of India, held at Medical College, Rohtak Sept., 1988; Abdominal wall defects in neonates and children, in national symposium on Surgery of the Abdominal Wall and True hermaphroditism in the national symposium on Intersex Disorders in Children in the Paediatric surgical section of the annual conference of the Golden Jubilee Celebrations of the ASI, December, 1988; Recent advances in biliary atresia and True hermaphroditism - a curiosity in diagnosis and management in the international workshop on Recent Advances in Neonatal Surgery and Intersex Disorders held at AIIMS, New Delhi, March, 1989.

Dr.V.Bhatnagar gave invited lectures on: Ventilatory support. in symposium on Care of Surgical Neonates, 14th mid-term conference of Indian Association of Paediatric Surgeons, October, 1988 at Bangalore; Neonatal ventilatory support, in, international workshop on Recent Advances in Neonatal Surgery and Intersex Disorders, March, 1989, AIIMS, New Delhi; Surgical approach to neonatal respiratory distress. in, Update on surgical problems in paediatric practice, Indian Academy of Pediatrics, March, 1989 at New Delhi.

Dr.M.Bhardwaj trained a clinical psychologist for the Department of Pediatrics.

RESEARCH

Research Completed

Indegenous muscle stimulator

Posterior sagittal anorectoplasty is a relatively new approach for the definitive surgery of anorectal malformations. In this approach the blind rectal pouch is required to be pulled down to the perineum precisely in between the perineal muscles namely levator ani, striated muscle complex and parasagittal fibres in order to provide continence. An indegenous muscle stimulator has been developed in the department which accurately defines these muscle fibres on either side of the midline during surgery. It requires A.C.mains supply of 240 volts and converts it into a direct current between 60 and 120 milli amperes as and when necessary. It has been named after the institute as - "AIIMS muscle stimulator" and is currently being used in various paediatric surgery centres eg. Calcutta, Bombay, Madras, Madurai, Aligarh, Varanasi, Jabalpur and New Delhi. The instrument is to be patented.

Role of diuretic 99m Tc-DTPA renogram in the management of hydronephrosis (PUJ obstruction) in children with histological correlation (Nuc.Med., Path, Ped. Surg)

Duration of antibacterial properties of gentian violet impregnated silastic and the effect of multiple autoclaving (Biostat, Microbiol, Ped. Surg)

Research Continuing

Study of craniosynostosis in Northern India: "Clinical, genetic, radiologic, psychosocial and surgical aspects"

The study started from 1.3.88 with an expected duration of 3 years. In the retrospective group (1972-Feb.1988) 87 children have been investigated and 69 operated upon. In the prospective group (March 88-March 89) 24 children have been investigated and 16 operated upon. The clinical presentation was as follows

scaphocephaly (3), trigonocephaly (9), brachyturriccephaly, (10) pachycephaly (1) and plagiocephaly (1) 3 children had Crouzon and 2 Alpert syndrome.

Surgery for craniosynostosis : The patients were operated by either linear craniectomy or fronto-orbital advancement by various operative techniques eg. on-lay graft (3), lateral cauthal advancement (11), tongue-in-groove (16) and modified tongue-in-groove devised in the department (3), revealed that sataisfactory cosmetic improvement occurred in over 80% patients, regression of papilloedema in 44.5% (4/9) patients improvement in I.Q. in 42.1% of (19) retarded patients Only 3 out of 10 patients with associated hydrocephalus required C.S.F. shunt. Death occurred in one patient. It was observed that the best cosmetic result with stable advancement occurred with the technique devised in the department.

Anorectal malformation : Its correlation with blood glucose in neonates & mothers

Anorectal malformation is considered as a part of spectrum of anomalies seen in 'Caudal regression syndrome'. It is reported to occur 1 in 100 live children born to diabetic mothers. With a view to establish the incidence of maternal diabetes amongst the offspring with anorectal malformations, blood glucose levels were studied both in mothers and neonates during the first week postpartum. Pregnant women with overt or gestational diabetes on regular treatment and their neonates constituted the control population. Two out of 26 neonates with anorectal malformations (7.7%) were found to have diabetic (gestational) mothers. The offspring, in the control group of 24 diabetic pregnancies did not exhibit any anorectal malformation. This could probably be due to controlled state of the disease during the period of organogenesis. Further studies are being undertaken to identify whether diabetic mothers need counselling.

Clinical observations of perineal morphology in male newborns with anorectal malformations

Though there are many modalities of differentiating high anorectal anomaly from low, there exists no clinical method to differentiate the same. With a view to establish a clinical method of differentiation, perineum was observed in 26 neonates with anorectal malformations. It was found that in high anomalies the perineum was short and base of the scrotum was very close to the anal dimple whereas in low anomalies the perineum was wide and base of the scrotum was quite away from anal dimple. It was also found that when an anorectal anomaly was associated with scrotal cleft, penoscrotal transposition, extreme hypospadias or median raphe inclusion cysts, most often the anomaly was of high type. These findings were suggestive of the fact that anorectal malformation is an arrest of development rather than development aberration. Further studies are being continued to confirm this.

CSF shunt complications

CSF shunt complications have so far been studied in 900 children with hydrocephalus due to congenital or acquired causes. The shunt used was the Upadhyaya's shunt and was placed in either the atrium or the peritoneal cavity. Shunt revision was required in 40% children. Shunt blockage was by far the commonest complication followed by infections. Shunt fractures were seen next in frequency. Other complications were rare. No significant difference in the incidence of complications was seen with regard to the atrial or peritoneal shunts.

Psychological assessment in hydrocephalus

In 1988-89, 226 psychological assessments were made on 119 hydrocephalic children, both pre and post operatively. Of these, 80 cases were registered in 1988-89. Follow up results reveal that 39 cases operated before 1984 had a mean mental performance quotient (MPQ) of 81.9 ± 17.5 dull normal and social quotient (SQ) 86.1 ± 19.6 except 4 cases who were severely retarded. It has been established now that

approximately 10 points fall in MPQ of children below 5 years of age, indicates malfunctioning of shunt or other complications, even if CT scan shows no change. Thus psychological assessment in itself is a good indicator of success of surgery in hydrocephalic children. Efforts are being made to construct a battery of tests to detect malfunctioning of shunt and for its early revision in children above 5 years of age.

Psychological assessment in craniosynostosis

Eighty assessments were made in 45 craniosynostosis patients. Of these, 26 cases were registered in 1988-89. Their pre operative mean mental performance was 84.9 ± 19.57 dull normal. It was found that their post operative MPQ improved to 89.97 ± 12.8 . It was further revealed that post operatively 57.1% cases were in the normal range (MPQ 90-110) 28.6% were dull normal i.e. (MPQ 70-90) and 14.3% had mild retardation (50-70). 19 cases were operated during or before 1986 who showed further improvement in MPQ of 91.5 ± 12.3 except two cases who were retarded. Cases with associated anomalies seem to function at low level of intelligence than simple craniosynostosis. An ICMR research has been started to follow up these children and to correlate the mental performance with other clinical variables.

Psychological assessment in intersex disorders

Eighty four cases of intersex disorders including ambiguous genitalia, undescended testes and microphallus were assessed in the clinic. Analysis of data revealed that 80% of the parents were over protective. Most of the mothers were found to be depressed and worried about eunuchs. All the children had an average mental development. Adolescents operated in childhood seemed to have conflicts in personal and social areas. They were found to have feelings of inadequacy and inferiority. Parental counselling is being advocated. Play therapy and behaviour therapy seems to be essential for these children.

Psychological assessment in Siamese twins

Siamese twins operated in Feb.'88 are now being regularly assessed for their psychological make up as well as the mental and physical growth development and liver function test and test for malabsorption. A 3 monthly follow up revealed a gradual increase in their mental and social performance with recent MPQ of 93 (normal) for Choti and 85 (dull normal) for Moti and SQ 100 (Choti) and 85.7 (Moti). Their language development seems to be comparatively slow. It has been planned to follow them up at least for five years. Physical growth is slightly retarded more in Moti than Choti. Liver function is normal. Malabsorption studies revealed mild degree of malabsorption for fat in Moti.

Efficacy of steroids & luminal in combination in differentiating neonatal hepatitis from biliary atresia on HIDA scanning (Nuc. Med, Ped. Surg)

DMSA scintigraphy in the evaluation of hydronephrosis (Nuc. Med., Ped. Surg)

Clinico-pathological study of biliary atresia (Path, ped. Surg.)

Microvascular anastomosis (NSC, Ped. Surg)

Clinical endocrinological and radiological evaluation of male pseudohermaphroditism (MPH) (Pediat., Ped.Surg)

New Research

1. To study the morphology of the renal and extra-renal tumours in relation to the renin-angiotensin system in children with and without hypertension.
2. Urolithiasis in children.
3. Anorectal manometry in patients with imperforate anus and Hirschsprungs' disease

4. Study of testosterone and dehydrotestosterone levels in MPH
5. Intracranial pressure studies in craniosynostosis
6. Study of teratogenesis in chick embryo using serum of neonates with imperforate anus.
7. Experimental study of ventriculoperitoneal shunt in rats in the presence of enterocolitis, infected C.S.F. or both.

AWARDS AND EVENTS

Distinctions, Awards, Honour

Dr.V.Bhatnagar was conferred the membership of the National Academy of Medical Sciences (India).

Significant Events

Dr. Rohatgi was appointed member of board of studies in pediatric surgery at BHU for 1988-89; presented Silver Plaque, Oct.1988 by the Bangalore Surgical Society; was president of Indian Association of Paediatric Surgeons for the year 1988; Visiting Professor to University of Kabul June, 1988.

Dr.Mitra was chairman of a scientific session of Paediatric Surgical Section and was Co-Chairman of a session of urologic section of ASICON'88; elected to the executive committee of the Indian Association of Paediatric Surgeons for the year 1989.

Dr.D.K.Gupta has been deputed to visit Mott Children Hospital, University of Michigan Medical School, Ann Arbor, USA to learn the advanced technology in neonatal surgery and paediatric oncology. The visit was sponsored by the World Federation of Association of Paediatric Surgeons from March 20, 1989 for 3 months; was invited to present paper on "Antiperistaltic appendiceal conduit in advanced biliary atresia in the annual meeting of the American Paediatric Surgical

Association, Baltimore, Maryland, USA, May, 1989; elected as a member of the British Association of Paediatric Surgeons, July 1988.

Dr.V.Bhatnagar was appointed convenor for symposium on parasitic infestations to be held at Varanasi in the ASICON, 1989.

Dr. Minu Bajpai obtained the degree of Diplomate National Board in Jan. 1989.

Dr.Madhu Bhardwaj obtained Ph.D. in clinical psychology.

HOSPITAL SERVICES

There were five special clinics run by the department. The attendance of this clinics was as follows:

	New Cases	Old Cases	Total
General OPD	7145	13201	20346
Hydrocephalus clinic	188	573	761
Intersex clinic	132	550	682
Urology clinic	70	265	335
Craniosynostosis clinic	26	29	55
Cancer clinic	89	557	646

Operations performed:

Major	1205
Minor	2730

Community Services & Education

Dr.M.Rohatgi gave radio talks on Premature infants: problems related to surgery at birth; Bacchon Ke Sir Mein Pani Bhar Jaine Ki Bimari; Intersex disorders in children; Separation of Siamese twins, Bacchon mein napunsakta ka shalya chikitsa dwara ilaj and a Doordarshan programme on Neonatal surgical emergencies and Siamese twins.

Mr.V.P.Grover gave radio talks on "Why pathology investigations are important and Bacchon mein rog ke nidaan mein adhunik parikshano ka mahatva.

Dr.D.K.Gupta delivered a radio talk on "Abdominal pain in children.

PUBLICATIONS

1. Gupta D.K. Artificial pathways between liver and intestines. Sciences Service. 1989; 8 : 1.
2. Gupta D.K., Rohatgi M., Chandna S., Bajpai M. Lobar emphysema in infancy. Indian Pediatr. 1988; 25: 632-635.
3. Gupta D.K., Rohatgi M., Subba Rao P. Mesenteric Lipoma in a Child. Indian Pediatr. 1988; 25: 1007-1009.
4. Krishna A., Bhatnagar V., Mitra D.K. Congenital eventration of the diaphragm. Indian J. Pediatr. 1988; 55: 803-806.
5. Rohatgi M. Craniosynostosis and its management: Editorial Nat. Med. J.of India. 1988; 1: 171-172.
6. Rohatgi M., Chandna S. Neonatal necrotizing enterocolitis. Indian J. Pediatr. 1988; 55: 871-877.
7. Rohatgi M., Gupta D.K. Isolated ileal loop endorectal pull through. "A new approach in management of complicated Hirschsprung's disease".J.Pediatr. Surg. 1989; 24: 177-179.
8. Rohatgi M., Krishna A. Neurosurgical emergencies in newborn-diagnosis, approach and principles of management. Indian Pediatr. 1988; 25: 102-111.

Collaborative research publications

1

Chapters in Books

1. Rohatgi M and Bajpai M : Surgical techniques in cleft lip repair. In Cleft Palate, Cleft Lip & Orofacial Anomalies, Ed. Shanti, K. Anand Printers & Publishers, Madras 1988, p 175- 192.
2. Mitra D K Foreign bodies : in Medical Emergencies. Ed. Singh, M. Sagar Publication, 1988.

Papers presented at scientific meetings 1

Papers accepted for publication 18

Chapter 6.33

PSYCHIATRY

FACULTY

Professor

D.Mohan

Additional Professors

S.Dube (Clinical Psychology)
R.Ray

Associate Professors

H.M.Chawla
M.Mehta (Clinical Psychology)
S.Gupta (Clinical Psychology)
S.K.Khandelwal
S.Saxena
N.G.Desai
B.M.Tripathi

Assistant Professors

N.K.Dhar
B.S.Chavan
K.Chandiramani
Rakesh Lal
N.Kaw
Vinay Kapoor
H.P.Jhingan
R. Jain (Chemistry)
M. Vasvani (Chemistry)

Dr.S.Saxena has proceeded on one year's study leave for doing Diploma Addiction Behaviour at the Institute of Psychiatry, University of Psychiatry, London in October 1988. Drs. Ray, Desai, Tripathi, Dhar, Chavaan, Chandiramani, Lal, Kaw, Kapoor, Jhingan, Jain and Vasvani joined this year as faculty for the De - addiction Centre as well as the department.

EDUCATION

Continuing Medical Education

The Department organised two training courses for the In-service medical officers from different states on 'Drug and alcohol dependence disorders' treatment. i) October 1988: This course was attended by 10 state nominated psychiatrists from different centres of the country and ii) January 1988: attended by 11 medical officers nominated by the state governments.

The Department organised a "National workshop on Rational use of Psychoactive Substances", January, 1989.; a Northern "Regional Workshop for implementation of National Drug Dependence Programme", January, 1989.; training workshop on monitoring of drug abuse for the I.C.M.R. collaborating centres (August, 1988) and training workshops on monitoring of drug abuse (NGO's):-

Dr.S.K.Khandelwal was invited as a discussant in the panel discussion, "Newer strategies in the diagnosis and management of headache" at the 6th IMACGP National Conference, New Delhi, August, 1988.; delivered a lecture on "Acute Psychosis: Differential Diagnosis and Therapeutic considerations" and chaired a session in the Neurology update - 88 organized by Department of Neurology, AIIMS, October, 1988.

At the seminar on "Alcohol Abuse - Problems and Policies" organised in Nov.88 jointly by Singhania Trust, Bombay and AIIMS, Dr. Ray and Dr. Desai presented papers on the topics "Alcoholism-Treatment & Management" and "WHO's role in Alcoholism" respectively. Dr.D.Mohan delivered keynote address.

At the National Workshop on the "Rational use of Psychotropic Substances" , Dr. Dube, Dr. Ray and Dr. Desai presented papers on "Psychological management of stress and anxiety", "Monitoring Use of Psychotropic Substances in Hospital Setting", "Abuse & Dependence of Psychotropic Substances" respectively. Dr.D.Mohan delivered key note address.

At the Eighth Annual Conference of Indian Academy of Neuro Sciences at Chandigarh, March 89 Dr. Ray and Dr. Tripathi presented papers on "Endocrinal dysfunction in alcoholism and alcoholic liver disease" and "Pathology of Opiate withdrawal state" respectively.

Dr. Tripathi presented a paper on "Critical Appraisal of NDPS Act" at the IPS Workshop on "Psychiatry, Law & Society" at Jaipur, March 89.

Dr. Mehta presented papers viz. "A Comparative study of family based and patient based behavioural management in OCD" at 4th Scientific meeting of Pacific Rim College of Psychiatrists, Hong Kong; "Early intervention in behavioural model" at 2nd National Annual Seminar on Mental Retardation, NIMH, Secunderabad; "Training of parents of the mentally handicapped: evaluation of efficacy" at the National Workshop on Child Mental Health, Chandigarh. She also participated in the "Indo-US Symposium on Child Mental Health" at NIMHANS, Bangalore in March 1989.

Mr. Gupta gave a lecture on "Treatment & Rehabilitation of drug addicts" at Institute of Criminology & Forensic Sciences New Delhi, Oct. 88. and presented a paper on "Behavioural sequelae in cases with closed head injury" at 38th Annual Conference of Neurological Society of India, Chandigarh, December 88.

RESEARCH

Research Completed

A study to compare and assess the outcome of patients dependent on opiated in (a) hospital setting (b) camp setting and (c) community level. Report submitted to Ministry of Welfare, Govt. of India, New Delhi.

The study, first of its kind of India compared the outcome of patients treated in a hospital, de-addiction camp and community setting in the union territory of

Delhi. A sample of 50 respondents each in a different settings were selected and followed up subsequently at the intervals of 3 months, 6 months, 9 months, 12 months and 15 months with the help of a pre-structured proforma. The results of study showed better treatment outcome on parameters like abstinence from drug, interpersonal relationship and job/study performances in the hospital setting with constant follow up as compared the other two settings.

Psychiatric assessment and determining extent of psychosocial disability in patients suffering from dementia (Psychiatry, NSC)

Research Continuing

Task force project on monitoring of drug abuse (ICMR)

The project commenced from August 1987 and covers three vital components viz monitoring drug abuse from hospital/clinic data, population survey in the community and treatment evaluation. The instruments for these three components have been developed, pretested and revised. Data collection has commenced from March 1989.

Community mobilisation in drug dependence

The programme has been launched in Urban slums, a vulnerable section of the society to create awareness, identification of alcohol/drug abusers, local resource mobilisation and community manpower development. The programme has been envisaged as a part of extension services at the community level to be provided by Drug Dependence Treatment Centre being operated from the Deen Dayal Upadhyaya Hospital, New Delhi by the Department of Psychiatry, AIIMS.

The development of a neuropsychological battery for use on Hindi knowing patients (ICMR) (Psychiat, NSC)

Mental disorders in rural school children (ICMR) (Psychiat, Comm. Med.).

New Research

1. National Survey on Drug Dependence

Significant Events

De-addiction Centre

Dr.D.Mohan was the Co-ordinator of Regional Workshops in various regions as a part of implementation of the National Drug Dependence Programme held at Hyderabad, Guahati, Bombay, Madras and Delhi. He delivered key note address at these Workshops; participated in ESCAP/WHO Workshop on drug abuse rehabilitation in Asia and Pacific, Thailand, May, 1988.; ARF symposium on Experiences with community action projects for prevention of alcohol and other drug problems. Ontario Canada, (March, 1989).; National U.G.C.Seminar on "Role of reduction in prevention of Drug use in University students (Feb.1989)".; National Seminar on Police Public relations at Vigyan Bhavan, New Delhi (Oct.,1988).; workshop on Alcohol related problems and National Drug Dependence programme, Bombay (Nov.1988) where he presented a paper and seminar on "Alcohol Abuse-Programme & Policies" New Delhi (Nov.1988). He has been appointed Advisor for Drug Dependence Programme in the Ministry of Health & Family Welfare and Officer-in-charge UNFDAC project on Drug Abuse Prevention and Control Measures in India and Adviser to WHO for alcohol/drug dependence programme.

Dr.S.Dube presented a paper on "Psychotherapy on Borderline patients: A psychoanalytic investigation" at the International Congress of Personality Disorders, August, 1988.

Dr.R.Ray has been appointed member of the Working Group on "Prevention & Control of Drug Abuse & Alcoholism", Ministry of Welfare and member of "Drug Abuse Prevention & Treatment", an activity of Ministry of Welfare.

Dr.S.Dube served as member, Committee of Rehabilitation Council in the field of visual disability and reviewed papers submitted to ICMR & ICSSR.

Dr.M.Mehta served as Executive member in the 5th Annual Conference on Pains, New Delhi, Feb. 1989 and as a member, Task Force on C.G.C. at NIPCCD, New Delhi.

Dr.S.K.Khandelwal served as Executive member of 5th Annual Conference of Indian Association of Social Psychiatry and Regional Symposium of World Association for Social Psychiatry, New Delhi, Feb. 1989.

Dr. K. Chandiramani was a co-author of the Marfatia Award winning paper "Predictive factors in the outcome of schizophrenia" at 41st Annual Conference of Indian Psychiatric Society, Cuttack, Jan. 1989.

Dr.Raka Jain participated in "Training course in forensic drug analysis" organised by Narcotics Control Bureau, India and Drug Enforcement Administration, USA at New Delhi, February, 1989.

De-addiction Centre

Consequent on the department being designated as a Manpower Development Centre in 1987-88, further progress occurred in the form of a Drug and alcohol dependence Centre(DAC) being started at the Deen Dayal Upadhyaya Hospital, Hari Nagar, New Delhi under the aegis of AIIMS. The Centre became operational with outpatient services in June 1988 and a 30 bed inpatient facility has been started since December 1988 with a provision for expansion to 60 beds. The Centre provides comprehensive treatment services rendered by a multi disciplinary team of mental health professionals. A major effort is being directed at development & evaluation of treatment models that can be practised across the country at different treatment centres. Training courses for medical officers nominated by the state governments have been initiated. The centre will also have supportive laboratory services for assay of dependence producing drugs on

biological fluids and assessment of drug related health damage. Its main mandates are: a) manpower development b) evaluated treatment models b) continuing research d) development of ongoing data collection systems on health related issues and e) health education.

There has been significant inputs by the Ministry of Health & F.W. in the development of the centre.

HOSPITAL SERVICES

The following speciality clinics continue to provide services besides the main O.P.D. for general psychiatric problems.

- i) Walk in clinic
- ii) De-addiction clinic
- iii) Child guidance clinic
- iv) Neuro-psychiatric clinic
- v) The newly sanctioned Drug Dependence Treatment Centre at the Deen Dayal Upadhyaya Hospital, Hari Nagar, New Delhi has started functioning under the aegis of AIIMS since June, 1988.

Community Services & Education

The Department prepared audio tapes and slide material for a health education intervention on alcohol & tobacco consumption. It is being introduced among the vulnerable groups of slum dwellers and industrial workers to create awareness to tackle the problem of drug dependence at community level, as also in the National mental health training programme.

Dr. M. Mehra was invited to train social workers for care of psychosocial problems in children-victims of gas-tragedy at Bhopal by the Indian Red Cross to train teachers of Model School for Mentally Retarded children in behavioural modification techniques; and for a guest lecture on "Management of Perversions" at

Institute of Criminology and Forensic Medicine, New Delhi. Mrs. S. Gupta delivered a radio talk on 'Mansik roop se kamjor bachche aur unka punarvas'.

Dr.S.K.Khandelwal was invited as an expert and chairperson in symposium, "Recent Trends in schizophrenia" at the Daulat Ram College, University of Delhi, New Delhi, January, 1989.

Dr.R.Lal delivered a talk on "Role of primary health care physicians in early identification and management of drug dependence & alcoholism" at the National Institute of Primary Health Care, New Delhi, July, 1988.

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Collaborative publications

1

Chapters in Books

1. Desai, N.G. "Treatment and Outcome of Alcohol Dependence", Proceedings of the Indo-US Symposium on Alcohol and Drug Abuse (Eds) Ray, R., Pickens, R. (1989) page 109-119 NIMHANS Publication No. 20, NIMHANS, Bangalore.
2. Gupta, S. "Psychological evaluation of memory function". Lectures in Neuro-biology. Eds. Tandon, P.N.Bijlani, V., Wadhwa, S. AIIMS New Delhi 1988, 186-191.
3. Mehta, M. "Cognitive behavioural intervention in abdominal pain", Chronic pain; Reactions, Mechanisms and Modes of Therapy, (Eds.) Sharma, K.N., Nayar, U., Bhattacharaya, N.ISPRAT, IV, 1989, 169-173,
4. Mohan, D., Sharma, H.K. "Systematic evaluation of intervention strategy in drug abuse - an experience of a developing country". Proceedings of the Indo-US Symposium on Alcohol and Drug Abuse, (Eds) Ray, R., Pickens, R.W.NIMHANS, Bangalore 1989, 265-273.

Book

Ray R. & Pickens R. Proceedings of Indo-US Symposium on Alcohol & Drug Abuse NIMHANS publication No.20, NIMHANS, Bangalore 1989.

Chapter 6.34

RADIO-DIAGNOSIS

FACULTY

Professor and Head	M. Berry
Professor and Director	S. Bhargava
Additional Professor	S. Mukhopadhyay
Associate Professors	S. Sawhney K. Gupta
Assistant Professor	R. Gupta
Additional Professor (Ophthalmic Radiology)	S. Vashisht

Dr. M. Berry became Professor on 28.4.88.

Dr. Renu Gupta joined as Asstt. Professor on 30.4.88.

EDUCATION

Continuing medical education(CME)

The department organised a CME programme on 'Imaging in Orbit, PNS and Ear' in September 1988 in collaboration with Delhi Branch of Indian Radiological & Imaging Association; and an International Symposium on Magnetic Resonance Imaging in collaboration with Department of Radiology, Baylor College of Medicine, Houston, Texas, USA, December 1988.

Dr. M. Berry, Dr. S. Mukhopadhyay, Dr. S. Vashisht and Dr. S. Sawhney participated in lecture-cum-demonstration & meet the Professor session on Ultrasonography and Computerized Tomography in 6th National Conference for Indian Association of Private Practitioners on 19.8.88 at AIIMS.

Dr. S. Vashisht and Dr. Arun K. Gupta participated in a programme on 'Administrative Procedures' conducted by Institute of Technology & Management System at AIIMS.

Dr. S. Bhargava gave talks on Imaging in Acute abdomen- Association of Surgeons of India - annual meeting and Advances in imaging in Paediatrics - Deptt. Of Paediatrics, AIIMS.

Dr. M. Berry spoke on Radiographic & CT anatomy of para-nasal sinuses in CME on Imaging in Orbit, PNS & Ear and Radiology services - an overview in Hospital Administration Update on Planning, establishment and maintenance of speciality services.

Dr. S. Mukhopadhyay gave talks on Roentgen evaluation in benign PNS lesions - in CME on Imaging in Orbit, PNS & Ear and Conventional Uroradiology - in Urology update organised by Mujlibhai Patel Society for Research in Nephro-urology at Nadiad, Gujarat.

Dr. Vashisht gave talks on "Plain X-rays and CT evaluation of proptosis" and Interesting Film Session - CME on Imaging in Orbit, PNS & Ear; Newer investigative techniques in ocular radiology - Workshop on Ophthalmoplasty & Orbital Surgery.

Dr. Arun K. Gupta spoke on Malignant lesions of PNS-CME on Imaging in Orbit, PNS & Ear; Radiology in intersex - Paediatric Surgery Chapter of ASICON '88; Advances in radiology in surgical neonates - International Workshop of Paediatric Surgery.

Dr. Renu Gupta gave a talk on Foreign body localization in orbit - CME on Imaging in Orbit, PNS & Ear.

Mr. Arjan Singh gave a talk on Radiography of extremities - CME on medical technology at PGI, Chandigarh.

Short-term training was provided to 66 senior and junior radiologists from different parts of the country in the field of ultrasonography, X-ray computerised tomography, interventional radiology & vascular radiology. The break-up is as follows: Madhya Pradesh (19), Bihar (8), Rajasthan (8), Uttar Pradesh (16), Jammu & Kashmir (2), Delhi (4), Chandigarh (1), Assam (2), Mizoram (1), Punjab (2), Gujarat (1), West Bengal (1), Orissa(1).

Short-term training in radiography was provided to 9 technicians, six from Jammu & Kashmir and 3 from Central Government.

RESEARCH

Research Completed

Bony ankylosis of the temporo-mandibular (TM) joint - A CT study

Coronal CT scan was done in 50 patients with ankylosis of TM joint. 86% cases were post-traumatic. Bilateral involvement was present in 14 patients, and newbone formation in 64 joints. According to CT findings these joints were classified in two types -

Type I - Medially angulated condyle with deformed articular fossa with mild to moderate new bone formation.

Type II - Huge mass of new bone formation without recognizable condyle or fossa.

77% cases showed pseudo-fracture through a new bone.

Since coronal CT scan fully characterized the lesion it should become a pre-requisite in pre-operative evaluation of these patients.

Evaluation of coronary artery bypass graft (CABG) patency by computerised tomography

17 patients with CABG were subjected to dynamic CT scanning. 100% of right group, 86.5% of left group and 72.2% of posterior group of grafts were well seen on CT. CT is an excellent modality for visualization of venous grafts.

Paediatric abdominal mass -Ultrasound (US) and CT analysis

A retrospective analysis of US and CT scan in 50 children with abdominal mass lesions was done. Break up of the cases was renal mass 28% extra renal retroperitoneal mass 50%, hepatobiliary-splenic mass 16%, pancreatic mass 2% and ovarian mass 4%. CT was found to be an effective method of evaluating the patients and planning surgery.

Correlation of US and CT morphology in the evaluation of amoebic liver abscess - A serial study

56 amoebic liver abscesses in 30 patients were evaluated by ultrasonography and computerized tomography. Single abscess was seen in 19 patients and multiple abscesses of varying size and number were seen in 11 patients. Sonographic image morphology in terms of wall and contents was compared with CT morphology. Follow-up US & CT scans were done to assess ageing and resolution of the abscess. Complete clearing of the abscess was seen in 12 weeks to 32 weeks.

An evaluation of the role of ultrasonic imaging and cranial computed tomography in infants with suspected cranial pathology.

85 children with suspected intracranial disease, having patent fontanelle were prospectively evaluated with cranial ultrasound and CT. A wide variety of congenital, vascular, infective and tumorous conditions were identified. Both the modalities were

extremely valuable in the evaluation of these disorders offering comparable anatomic information, but CT was more precise in defining pathological nature and extent of disease.

Wither intravenous pyelography (IV P)

To limit the number of unnecessary IVP in conditions where plain X-ray + US can give the answer, a project was undertaken. Over a period of 2 months 355 cases were referred for IVP. Plain film + US could give the answer in 257 (72.3%) cases. IVP in addition to plain film and US was done in 98(27.6%) cases. Additional information given by IVP was useful in 19(18.9%) cases. The last group comprised of cases of renal trauma, ureteric anomalies, GU TB, fistulous tracts, and UPJ obstruction. IVP is now being done in those cases with haematuria where KUB + US are negative and calculus disease is suspected. This has reduced cost, radiation and time for both patient and radiologist.

CT morphology of hepatic metastasis

The CT scans of 76 consecutive patients suspected to have hepatic metastasis were evaluated. Clinically 50% patients had hepatomegaly, SGOT, SGPT and SAP were done in 20 cases, 10 cases showed increased SAP and 6 showed increased OT,PT.

CT showed involvement of both lobes in 75%, right lobe alone in 25% . Size of metastasis varied from 5-10 mm. Primary site was breast in 25% , ovary and lung 16.6%, rectum & oesophagus 8.3%, renal and GB in 4.16%.

Evaluation of growth hormone profile in children with proportionate short stature(Rad. Diag., Pediat)

Clinical, endocrinological and radiological evaluation of male pseudohermaphroditism (MPH).(Rad. Diag., Pediat)

Experience with female pseudohermaphroditism (FPH) at AIIMS (Rad. Diag., Pediat.)

Anorectal malformation(ARM) - its correlation with blood glucose in neonates and mothers. (Rad.Diag.,Ped. Surg.)

Clinical observations of perineal morphology in male newborns with anorectal malformation.(Rad. Diag, Ped. Surg.)

Bronchoscopic and clinico-radiological evaluation of lung collapse in paediatric age group. (Rad. Diag.,Pediat,Otorhino)

Ultrasonographic evaluation of optic neuritis and papilloedema. (Rad. Diag., RPC)

Operative cholangiography: a study of its efficacy and its usefulness in biliary tract surgery. (Rad. Diag., Surg.)

Utility of ultrasonography in the management of complications of renal transplantation. (Rad. Diag., Surg.)

A comparison of trans-abdominal ultrasonography, urine cytology and check cystoscopy in the evaluation of follow-up of carcinoma of the urinary bladder. (Rad. Diag., Urology)

Research Continuing

Noninvasive imaging of pancreatic mass lesions and the role of guided FNAC.

45 patients have been evaluated for image morphology on US and CT. thirty were subjected to fine needle aspiration cytology. Of these, 25 patients had malignant pancreatic lesions while 20 had an inflammatory mass lesion.

Comparison of conventional phlebography and digital subtraction venography for imaging the venous system.

14 patients have been studied till now. Conventional technique of ascending phlebography has been performed in 7 patients while DSA technique in 7 patients. The plan is to study 50 patients before analysing the data.

Role of intravenous digital subtraction angiography in the evaluation of systemic hypertension.

48 patients with systemic hypertension have been studied by intravenous digital subtraction angiography utilising centrally delivered venous injection. The examination was done as an out-patient procedure. Minor complications in the form of transient blurring of vision and unilateral orbital oedema were encountered in two patients each. The results are being analysed.

Computed tomography of sellar and juxtasellar lesions

24 patients have been studied so far. Coronal sections were taken for sella, taking 4.0 mm or 2.0 mm slices as necessary. On histology, the majority are chromophobe adenomas. Study is in progress.

Conventional radiology, CT and intravenous DSA in primary musculo-skeletal tumours (Orthoped, Rad. Diag.)

Imaging of orbital space occupying lesions with US and late generation CT Scanner with clinico-pathological correlation. (Rad-diag, RPC).

US & CT evaluation of pancreas in young diabetics (Radio-Diag., Endocrin)

Role of computerized tomography in the management of parapharyngeal tumours (Radio Diag., Otorhino)

A study of correlation of operative findings, FNAC, US radio-nuclide scanning and histopathology in solitary thyroid nodule (Radio-Diag., Surg, Nuc Med.)

Role of CT scan in the preoperative staging of carcinoma of oesophagus. (Radio-Diag., Surg)

Role of CT scan in the staging of carcinoma of urinary bladder. (Radio-Diag., Urology)

Role of cranial CT in children with acute leukaemia. (Radio-Diag., Paediat)

Comparative evaluation of US, CT and scintigraphy in hepatic metastases : A prospective study (Radio.-Diag., Nuc. Med.)

Multicentric project to establish documentation criteria and efficacy of short course chemotherapy trial for pulmonary tuberculosis in children based on radiological changes. (Paediat. Radio-Diag.)

High resolution CT of the ear. (NSC, Radio-Diag. Otorhino.)

Doppler blood flow wave-forms in the foetal aorta in normal and hypertensive pregnancies. (Radio-Diag., Obst. & Gynae)

Endoscopy of nose and the antrum in chronic maxillary sinusitis. (Radio-Diag., Otorhino)

Utility of intravenous digital subtraction angiography in the diagnosis of renal artery stenosis in post-transplant hypertensive recipients. (Radio-Diag., Surg)

A comparative study of the rate of urological complications of the conventional intravesical and the recent extravesical techniques of uretero-neocystostomy in renal transplantation. (Radio-Diag., Surg)

DST project on the causes, pathogenesis, management and prevalence of extrahepatic obstruction and non-cirrhotic portal fibrosis in India. (Radio-Diag., Surg.)

Plasma renin activity in renal and peripheral vein samples in patients of renovascular hypertension. (Pharm., Med., Radio-Diag., Surg.)

Evaluation of efficacy and adverse reactions of different schedules of short-term chemotherapy for the treatment of primary complex in children. (Radio-Diag., Pediat)

A study of the physical growth, skeletal maturity (skeletal age) and psychological assessment at preadolescence and adolescent in relation to the nutritional status in urban slum localities of Delhi. (Radio-Diag. Pediat)

A study of the thyroid nodule using clinical status, thyroid isotope scan, ultrasound, FNAC, biochemical, antibodies and histopath for selected group. (Radio-Diag., Endocrin, Nuc. Med)

New Research

1. CT and CT guided percutaneous intervention in the evaluation of mediastinal and hilar lymphadenopathy.
2. Correlation of US and CT in the evaluation of abdominal lymphadenopathy.
3. US and CT evaluation and percutaneous intervention in acute pancreatitis and its complications-a serial study.
4. US and CT in staging and follow up of ovarian malignancies.
5. CT and echographic evaluation of cardiac and pericardiac mass lesions.
6. Peripheral angiography in angiomatous malformation of limbs.
7. Intercorrelation between BAL cellular findings, lung function tests, arterial blood gas analysis and radiological findings in diffuse interstitial lung disease.

8. Comparative evaluation of US, CT and ERCP in pancreatic lesions.
9. US and CT evaluation in optic nerve injury.
10. Dissolution of gall stones by perfusion of mono-octanoin into the gall bladder.
11. CT evaluation of thymus in patients with myasthenia gravis.
12. CT in adrenal lesions.
13. Doppler study of blood flow velocity waveform in fetal descending aorta of normal and IUGR pregnancies.
14. Study of spinal injury with traumatic paraplegia and tetraplegia treated at AIIMS.
15. Role of CT scan in endolymphatic sac surgery.

AWARDS AND EVENTS

Distinctions, Awards, Honour

Dr. S. Bhargava delivered Major General Mazumdar Oration at AIIMS., New Delhi and Dr. P.K. Halder Oration at Calcutta. She was nominated Fellow of National Academy of Sciences, Allahabad. She gave a convocation address for IMA Academy of Medical Sciences.

Dr. M. Berry continues to be an Associate Editor on the Editorial Board of Indian Journal of Radiology & Imaging and invited member of the American Institute of Ultrasound in Medicine.

Dr. S. Vashisht received the membership of National Academy of Medical Sciences. She continues to be an Associate Editor of Indian Journal Of Radiology & Imaging.

Significant Events

Dr. S. Bhargava inaugurated 'Reproductive endocrinology workshop & International MRI symposium'; was the Chief Guest at National Conference of NIHFW, National Conference of IMACP, National workshop on neonatology; was nominated member of environment research committee by Ministry of Environment, Govt. India; attended WHO meeting on Clinical Diagnosis at Geneva, INCLIN meeting and ECFMG meeting at New York; visited Medical Education Technical Center at Dundee; attended 3rd UAE Conference on Cancer at Dubai and presented a paper on 'Imaging techniques, US and CT Scanning in Cancer Diagnosis.

Dr. M. Berry was nominated member by the Director General of Health Services to review Import Policy for X-ray films, jumbo rolls and photosensitized goods; for expert working group for finalisation of guidelines of NRI investment under the 74% scheme in hospitals and advanced diagnostic centres; continues to be the technical expert nominated by DGHS for procurement of CT Scanners and diagnostic equipments for Cancer Control in India under Japanese assistance to India. She was invited by the Director, Central Drug Research Institute, Lucknow, to attend Expert Group meeting to analyse the data on clinical trials on new contraceptive agents; was nominated member of Central Committee and H.P.F. Consultative Committee of Indian Radiological & Imaging Association; chaired Scientific Session at 42nd Annual Congress of Indian Radiological & Imaging Association held at Calcutta; attended 1988 World Federation of Ultrasound in Medicine and Biology, Second World Congress of Sonographers held at Washington DC in October 1988 and presented papers on Noninvasive imaging in primary carcinoma of the gall bladder and Correlation of US and CT morphology in the evolution of amoebic liver abscess. She has been nominated member Project Committee, IRCH, member Radiation Safety Committee, AIIMS.

Dr. S. Vashisht was elected President, Indian Radiological & Imaging Association (Delhi Branch) for 1988.

Dr. S. Sawhney was awarded WHO Fellowship from March 1989 to May, 1989.

Dr. A. K. Gupta was nominated member of Medical Committee by Sports Authority of India for varification of age for National Sports Talent Context. He is also elected Secretary, Indian Radiological & Imaging Association (Delhi Branch).

Visiting Scientists

Dr. Hartz, Head of Application Center of Siemens, West Germany, delivered a lecture on "Latest techniques in MR".Dr. (Mrs.) R. Mathur De Vre from Institute D'Hygiene et'd Epidemiologie from Belgium visited the department under TOKTEN project and gave the following lectures: 1) P₃₁ in vivo spectroscopy in hypothyroidism in rats. 2) Tissue characterization and value of T₁ T₂ relaxation times in vitro. and 3) Safety aspects of MRI.

Dr. S. Saini, Asstt. Professor of Radiology from Masschussette General Hospital, Boston, visited the department under TOKTEN project.

HOSPITAL SERVICES

Names of clinics run, operations performed, specialised investigations etc. with numbers.

Total No. of procedures	: 2,22,750
Out-door	: 1,23,404
In-door	: 37,059
Casualty	: 33,197
Special procedures	: 29,090

Barium meal	:	4,336
Barium enema	:	1,695
Barium swallow	:	932
Intravenous pyelogram	:	1,799
Micturating cystoure throgram	:	410
Oral cholecystogram	:	16
Splenoportovenogram	:	9
ERCP	:	91
Percutaneous transhepatic		
Cholangiogram	:	9
Hysterosalpingogram	:	182
Pelvimetry	:	3
Tomograms	:	2
Aortograms	:	208
Peripheral arteriographies	:	38
Venography	:	88
Ultrasound	:	11,026
Doppler	:	51
CAT Scan (Whole body)	:	1,797
CAT Scan (Head)	:	5,310
Ventriculograms	:	9
Myelograms	:	247

O.T. procedures	:	590
Interventional	:	242

		29,090

PUBLICATIONS

1. Berry M., Kumar A., Sawhney S and Bhargava S. Non-invasive imaging in primary carcinoma of the gall bladder. J. of Ultrasound in Med. 1988; 7:541-542 (abstr.)
2. Berry M. and Bhargava S. Correlation of US and CT morphology in the evolution of amoebic liver abscess -a serial study. J. of Ultrasound in Med. 1988; 7:542.(abstr.)
3. Kapoor A., Khosla A., Sawhney S., Berry M. and Bhargava S. Ultrasonography in renal transplant. Ind.J. of Urology. 1988;4:67-70.
4. Sawhney S. and Berry M. Peritoneal mesothelioma - A Case Report. Austral Radiol. 1988;32:490-492.
5. Vashisht S. Chronic pancreatitis. Editorial. Ind. J. of Radiol. & Imaging 1988; 42:261-263.
6. Vashisht S. Paediatric Body Ct. Book Review. Ind.J. of Radiol. & Imaging. 1988; 42:319.

Collaborative publication

23

Chapter in Book

Following chapters were written in: Imaging in Orbit, PNS and Ear CME ICRI Manual, Ed: Vashist S, Khosla A., AIIMS 1988.

1. Berry M. Radiographic and CT anatomy of paranasal sinuses: P 28-31.
2. Gupta A.K. Malignant tumours of the paranasal sinuses: P 32-33
3. Sharma S, Vashisht S., Berry M. Roentgen evaluation of developmental cranio-facial malformations: P 23-27.
4. Vashist S. Plain X-ray and CT evaluation of proptosis: P 9-12.

Mukhopadhyay S. Computerised XRay tomography in Cardiology. In National Symposium & Workshop on Nuclear Cardiology. Ed Gopinath PG. Malhotra A. RNC Publishers; New Delhi, 1988 p. 130-134.

Chapter 6.35

RADIOTHERAPY

FACULTY

Professor and Head	U. SHARMA
Additional Professor	R.M. SINGHAL
Associate Professor	R.L. SHARMA
Assistant Professor	P.K. JULKA

Mr. S. Sakthiwal, joined the department as a Physicist in September, 1988.

EDUCATION

Continuing Medical Education

Dr. R.M. Singhal participated in 6th IMA CGP national conference on "General Practice" in August 1988 at Delhi.

Mr. R.L. Sharma participated in a workshop on Quality Assurance and Surveillance on Diagnostic Radiology in January 1989 at Kidwai Memorial Institute of Oncology at Bangalore.

Mr. S. Sakthivel, participated in an International CME programme on Radiation Oncology in March 1989 at New Delhi.

Dr. Amir Hussain on WHO Fellowship from Bangladesh was placed in Radiotherapy deptt. for training for one month.

Miss. Neizachong Thangeo Ist Year B.Sc. (P.C) Nursing student was imparted training in radiotherapy w.e.f. 16th May to 14th June 1988.

Practical training was given in Radiotherapy to technical staff from Tripura.

RESEARCH

Research Completed

Evaluation of therapeutically exposed bone marrow to irradiation in patients with confirmed malignancy

Morphological & cytogenetic changes in the locally irradiated marrow were studied till one year post treatment in 20 cases of carcinoma of the uterine cervix. There was a decrease in marrow cellularity. 26% patients showed aplasia. No precursors or megakaryocytes were seen after treatment till one year when the precursors showed an early recovery. Cytogenetic studies showed a decreasing incidence of unstable aberrations with time. Stable aberrations appeared at one year. It appears that these stable aberrations may serve as markers for the regenerative capacity of the local marrow.

Research Continuing

Cytogenetic assessment and counselling of retinoblastoma families.

Lymphocyte cultures from peripheral blood in 115 patients were obtained. Fifty metaphase in each study was screened for numerical and structural aberrations. Chromosomal aberrations were identified and scored on the guide lines laid down by International Atomic Energy Agency (IAEA), Technical series, 1986, World Health Organization (WHO) series 1973 and proforma prepared by Carrano & Natrajan. Chromosome screening was carried out on 1582 cells from 115 patients. Eighty two cells were scored abnormal. Specific nature of chromosome abnormalities needed karyotyping, which is in progress. It is intended to correlate these aberrations in cultured lymphocytes to therapeutic doses received amongst these children.

Mathematical and statistical calculation will be applied to achieve an equivalent total body dose.

Computed mammographic evaluation of breast cancer and its therapeutic significance.

Study is continuing. Clinical objective assessment is used as guideline for multimodal management. Till date more than 200 patients have been studied.

New Research

1. Cytogenetic assessment of therapeutically irradiated patients surviving five to fifteen years subsequent to treatment.
2. Prevalance of ABO blood groups and HLA antigens in breast cancer.
3. Psychological aspects - the effect of treatment on cognitive and emotional states in cancer.

Significant Events

Prof. (Mrs.) U. Sharma participated in a Prof. Pointon Farewell Scientific Symposium in November 1988 at Manchester; and in "Advanced Oncology Course" of Royal College of Radiologists, London in November 1988. She was awarded Sr. Medical Commonwealth fellowship and visited U.K. from September to November 1988; was nominated by Medical Council of India as an inspector for M.D. Radiotherapy at Kasturba Medical College, Manipal and BHU; was an expert member for Standing Committee for teletherapy units in India.

Visiting Scientists

Dr. U.V. Gopala Rao, Assoc. Professor of Radiology, Johns Hopkins University, Baltimore, Maryland, U.S.A. delivered a lecture on "some speculation on the upper limits of Medical Imaging" on 10-2-89.

Computer Facilities

The department has been equipped with a PC - XT in 1988. The facility is being utilised for treatment simulation and dosimetry of patients receiving radiation treatment. Custom designed software have been developed in the department to facilitate the computation of daily doses and corrections in time, dose, fraction factors.

HOSPITAL SERVICES

The department has catered for out-patients, inpatients and emergency services. Special radiotherapy treatment planning clinics and speciality clinics are as shown below;

Monday	Oropharyngeal, Orobuccal & Neural
Tuesday	General OPD
Wednesday	Lymphoma, Endocrine
Thursday	General OPD & review treatment clinic.
Friday	Main follow up, Breast, pelvic malignancy
Saturday	Reaction clinic

Workload

New Cases	638
Follow up cases	4827

Radiation service workload

Patients on treatment	7067
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Cases planned	468
Reaction observed	1168
Field verified	15531

Chemotherapy workload

Injectable	2713
Oral	2419

Special cancer clinic workload

ENT	1697
Orobuccal	859
Lymphoma	512
Neuro & Endocrine	926
Breast & Thyroid	2100
Pelvic Malignancies	3449

Operative and Laboratory Services

Blood examination	300
Minor O.T.	389
Bone Marrow	20
Blood culture	78

Physics Laboratory Workload

Compensator	306
Mould Room	254
Isodose	135

Shielding

6

Marker film

959

Community Education and Services

Dr. P.K. Julka gave a talk on Doordarshan on "Cancer Prevention - Early detection and Management" on 9-6-1988.

PUBLICATIONS

Paper accepted for publication

1

Chapter 6.36

DR. RAJENDRA PRASAD CENTRE FOR OPHTHALMIC SCIENCES

FACULTY

Chief and Professor	Madan Mohan
Professors	P.K.Khosla N.N.Sood P. Prakash V.K. Dada
Additional Professors	S.K. Angra H.K. Tewari S. Vashist
Associate Professors	S.K. Gupta R. Madan S. Ghose V. Menon H.C. Agarwal S.M. Betharia S.P. Garg R.V. Azad A. Panda N. Jaffery
Assistant Professors	R. Arora V.K. Kalra Y.R. Sharma M. Chandra A. Kumar R.B. Vajpayee R. Sihot P. Sharma M.P.S. Sachdev G. Satapathy T. Shankar Kumar

EDUCATION

Continuing Medical Education

The following National workshops, seminars and symposiums were organised.

One week workshops were organised on (1) Paed. Ophthalmology in March, 1988 (2) Eye bank methodology and corneal preservation techniques in August, 1988 (3) Contact lens in Oct. 1988 (4) Ophthalmic plastic and orbital surgery in November, 1988.

Visit of Orbis

At the invitation of Ministry of Health & Family Welfare Govt. of India 'Project Orbis' visited New Delhi for two weeks from 3rd September, 1988 to 17th September, 1988. Dr. R.P. Centre for Ophthalmic Sciences, collaborated with it in CME. The faculty and resident staff of Dr. R.P. Centre worked closely with the faculty of 'Project Orbis' to exchange experiences in various superspecialities of Ophthalmology. Faculty members from other hospitals and Instts. and private practitioners from Delhi also visited the Orbis.

2 Workshops one on Vitreoretinal diseases and other on Micro-surgery and I.O.L. of 3 days duration were organised by the Centre in collaboration with the faculty of the Orbis. Lectures, panel discussions and surgical sessions were held in the Centre as well as on the plane. Over 50 operations were performed. The residents and nurses had 'hands on' training with the staff of Orbis.

Total of 134 participants attended the above mentioned symposiums/workshops.

18 Ophthalmologists from various parts of India and abroad studied as short term trainee during the year 1988.

9 W.H.O. fellows visited the Centre during the year 1988.

Prof. Madan Mohan participated in the following workshops held at RPC on Eye bank methodology; corneal preservation & storage techniques, August 1988; Contact lens workshop Sept., 1988; Symposium on Vitreoretinal Surgery and Laser in Ophthalmology, Sept., 1988; Workshop on Oculoplasty and Orbital surgery, November 1988; attended A.I.O.S. conference at Madras January, 89 & Organised scientific sessions as under:- i) Research project formulation and preparation of abstracts/scientific paper. ii) E.C.C.E. technique. iii) Safety in eye camp surgery. iv) Panelist at symposium on iatrogenesis in Ophthalmology. v) Panelist at "Against or For" Session. vi) Participated in round table meeting on corneal ulcer-its management. vii) Participated in Ophthalmic Parliament sessions.

Prof. P.K. Khosla participated in International Conference cum Exhibition on Primary Health Care (Health India, 88) by Indian Medical Association, Sept., 1988; workshop on "How to organise & strengthen Primary Health Care and to economise on Secondary and tertiary care" organised by the National Institute of Primary Health Care, April, 1988. Convenor for the Round Table Meeting at 47th AIOS Conference Madras, Jan., 1989; delivered guest lectures at a) XIV Rajasthan Ophthalmological Society Conference. b) All Assam Ophthalmological Conference. c) Silver Jubilee celebration of C.H. Nagri Eye Hospital. d) L.V. Prasad Institute, Hyderabad. e) Shankar Nethralaya, Madras.

Prof. N.N. Sood was Course Director in Workshop on Glaucoma, at L.V. Prasad Institute of Ophthalmology, Hyderabad and gave guest lecture at a) M.P. State Ophthalmic Society Conference. b) North Zone Ophthalmic Society. c) U.P. State Ophthalmic Society. d) Steiglitz Eye Clinic Berlin Free University, Berlin. e) Eye Clinic, Clogne University, West Germany. f) National Academy of Medical Sciences. g) 2nd Indo Japanese Congress. h) National Society for Prevention of Blindness.

Prof. Prem Prakash delivered guest lectures at a) U.P. State Ophthalmological Society. b) M.P. State

Ophthalmological Society Raipur branch. c) Rajasthan Ophthalmological Society. d) Guru Nanak Eye Centre. e) Federation Ophthalmic Research & Education Centre India.

Prof. V.K. Dada chairman, Contact Lens Instruction Course, Madras, 1989 and gave guest lectures at a) Ahmedabad Academy of Ophthalmology. b) L.V. Prasad Institute, Hyderabad. c) Sarojini Devi Eye Hospital, Hyderabad. d) National Workshop NIVH, Dehradun. e) National Symposium AIOS, Madras.

Dr. S.K. Angra gave guest lectures at a) Armed Forced Medical College Pune. b) Pune Ophthalmological Society, Pune. c) Resource person in Workshop on impact of National Programme on Control of Blindness and its projection for Eight Plan by NSPB, March, 1989. d) Resource person in National Workshop on National Programme for Control of Blindness. e) Convened National Seminar on "Eye Microsurgery and IOL in collaboration with Project "ORBIS". f) Convened a Workshop on Eye Bank Methodology and Corneal Preservation Techniques. g) Co-convenor in Current Sitapur Programme of "Safe Eye Camp surgery at Madras.

Dr H.K. Tewari was convenor of symposium on Vitreo-retinal Surgery organised by Indo-Japanese, Feb., 1989; Convenor of symposium on "Laser in Ophthalmology" organised by Indo-Japanese Ophthalmological Foundation, Feb., 1989; convenor of Instruction course on Indirect Ophthalmoscopy in 47th AIOS Conference at Madras, Jan., 1989; delivered guest lectures at a) I.M.A. Jabalpur (M.P) and Department of Ophthalmology Medical College Jabalpur. b) 47th A.I.O.S. Conference Madras. c) 7th Annual national seminar of IMA Academy of Medical specialities Delhi.

Dr. S. Ghose gave a guest lecture at 28th annual conference of the National Academy of Medical Sciences at Calcutta, Jan., 1989.

Dr. Vimla Menon was Co-chairperson & speaker in "Neurology Update" at AIIMS and gave lectures at a) Delhi Ophthalmological Society. b) Guru Nanak Eye

Centre MAMC New Delhi.

Dr. S.K. Gupta gave guest lectures at : a) I H H M M R in collaboration with WHO, Indian Pharmacological Society and Central Council for Research in Indian systems of Medicine, New Delhi and b) University College of Medical Sciences, Delhi.

Dr. S.M. Betharia was convenor of workshop of Oculoplasty and Orbital Surgery at R.P.C.; Co-convenor Instructional course on ptosis practical approach and gave a guest lecture at: 47th A.I.O.S. meeting, Madras.

Dr. R.V. Azad gave guest lectures at P.G.I. Chandigarh. b) Ist All India Coal Doctors meet Dhanbad. c) 26th Bihar Ophthalmological Society annual conference held Darbhanga. d) A workshop on lasers in chemical & biological sciences. Organised jointly by DST, USG, INMAS. e) Indian Medical Association Diamond Jubilee Medical Conference at Patna. f) 47th A.I.O.S. Congress Madras. g) Indo-Japanese Ophthalmological Foundation.

Dr. Sushma Vashisht organised a CME on "Imaging in Orbit, PNS' & Ear in Sept. 1989 sponsored by the Delhi branch of IRIA + AIIMS.

Dr. Anita Panda gave a guest lecture at the 47th All India Ophthalmological Congress Madras 1989.

Dr. V.K. Kalra gave a guest lectures at the Delhi Ophthalmological Society Jan., 1988.

Dr. Y.R. Sharma was co-convenor instruction course on Research Project formulation and preparation of abstract/Scientific papers 47th AIOS 1989.

Dr. Atul Kumar was co-convenor in workshop on 'Fluorescein angiography' at Jammu, Feb., 1989 and gave guest lecture at :a) Indian College of Radiology & Imaging, New Delhi and b) 47th A.I.O.S. Congress Madras.

Dr. Ramanjit Sihota was co-convenor of workshop on Oculoplasty and Orbital Surgery November, 1988 and gave guest lectures at : a) Chandigarh Ophthalmological Society, November, 1988 b) Delhi Ophthalmological Society, Jan., 1989.

Dr. Rashmi Madan gave guest lecture at the Delhi Ophthalmological Society on Ocular anaesthesia.

RESEARCH

Research Completed

Anterior segment ischaemia:

Anterior segment ischaemia has been evaluated by fluorescein angiography in Monkeys' after recession & resection of horizontal rectus muscles in various combinations. It was aimed to see whether there is any difference in the anterior segment circulation between recessed & resected muscles, as the resected muscle gets attached again to its original position of insertion whereas the recessed muscle is attached to a new site of insertion where there are no chances of revascularisation. However the study revealed no difference in the anterior segment ischaemia in both the techniques after a followup of six weeks.

Ultrasonographic evaluation of optic neuritis and papilloedema.

A prospective study of 11 cases of optic neuritis and 9 cases of papilloedema was carried out with 8 age and sex matched controls using B-scan ultrasonography. The clinical and ultrasonographic parameters were studied and their correlations established. Cases of optic neuritis showed blunting of V pattern, disc, elevation, irregular outline, doubling of nerve sheath. In cases of papilloedema the outline of nerve sheath was regular with few internal echoes, constriction of optic nerve 1 cm from the globe and significant disc elevation. Papilloedema as compared to optic neuritis showed less internal echoes, more regular nerve sheath

and narrowing at 1 cm whereas previous studies have claimed no differences between the two by the ultrasonography. Doubling of optic nerve sheath indicates perineuritis and a better prognosis.

Conjunctival cytology in vernal keratoconjunctivitis.

Thirty cases of vernal kerato-conjunctivitis were taken up to assess efficacy of topical indomethacin. Cellular profile of conjunctiva before and after treatment with 1% indomethacin and oxymetazone was studied. All the cases suffering from vernal catarrh showed a predominant presence of eosinophils, along with polymorphs and lymphocytes. Post-drug smears were studied at 15 days, 1 month and 1-1/2 month intervals. No change in cellular profile was seen although symptoms in these patients were partially alleviated.

Indo-US (DST-ICMR) collaborative research project "case control study of senile cataract"

To evaluate the role of suggested nutritional deficiencies and oxidative damage as risk factors in age related cataract, 16 biochemical investigations per blood sample have been done. Total of 1135 masked sample of specified cataract patients and controls who fulfilled the eligibility criteria of selection were included in the study. To keep laboratory quality control, intermittent standard samples and replicate masked blood samples drawn the same day were also included throughout the study. Interworker and intraworker variability were established. Following tests were done in each sample : Haemoglobin, plasma levels of proteins (total and differential) vitamins - C and E, glucose and BUN, nutritional dependent RBC enzymes i.e., G.R. glutathione reductase (Riboflavin dependent) TK-Transketolase (thiamine dependent), ASP-Aspartate aminotransferase (Pyridoxine dependent) and GPX- Glutathione peroxidase (Selenium dependent). The first three enzymes were done with and without saturating amount of the vitamin added in vitro. In addition erythrocyte levels of G6PD (glucose-6 phosphate dehydrogenase) and 6PGD (6-phosphoglucose dehydrogenase) were measured. The data analysis using

polychotomus logistic regression (PLR) model revealed that risk of pure, posterior subcapsular (P) and combined group of P and N (Nuclear) cataract decreased as an antioxidant index-3 (AO3: based on levels of GPX, G6PD Vitamin-C and E, synergistic effect) increased from lowest to highest levels. Risk of PN also decreased as haemoglobin increased by one standard deviation. However risk on PN increased as vitamin-C increased by one standard deviation. Risk of PC (C-cortical cataract) increased as copper increased by one standard deviation. No association between cataract and status of riboflavin, thiamine and pyridoxine could be found, in this larger study of specific cataract type. The study suggests that age related cataract development is a complex multi-factorial process.

Serum immunoglobulin and circulating immune complexes in patients off Eales diseases:

In this study 40 patients of Eales' disease and 40 age and sex matched controls were included for analysis of serum immunoglobulins i.e. IgG IgA and IgM, proteins and circulating immune complex. Patients with associated infective or inflammatory diseases were excluded from this study. The levels of all three serum immunoglobulins and immune complexes were statistically not different in the control group and in patients of Eales' disease. The levels of proteins (total and differential) in patients were within control limits. Levels of these immunoglobulin and immune complex in case of bilateral and unilateral diseases were also similar. No statistically significant difference was found in the values of immunoglobulins and immune complex in cases with active and inactive disease and in patient with different duration of symptoms.

Cytoimmunology in acute anterior uveitis of unknown etiology

In this study aqueous humour and blood from 20 patients of acute anterior uveitis (AAU) of unknown etiology and 20 controls, who had no systemic or eye

disease, have been taken for analysis, since obtaining normal control aqueous humour was not possible. The mean age group of control was more than patients. Immunoglobulins G, A and M in serum and aqueous humour have been quantitated. The correlation of these in control and patients revealed that in aqueous humour all three immunoglobulines were raised and the increase was statistically highly significant. Serum immunoglobulins were also raised significantly. There was a significant increase in ratio of aqueous humour to serum immunoglobulins in patients compared to control, for all three classes. The number of lymphocytes present in aqueous humour could not be correlated with either of the immunoglobulin levels. It was observed that whenever number of lymphocytes were high the immunoglobulins were invariably raised. Whether the changes observed were only due to the break down of aqueous blood barrier (s) or due to the contribution from surrounding tissues could not be ascertained. An involvement of immune response in AAU is suggested.

Evaluation of the effect of argon laser trabeculoplasty (ALT) in open angle glaucoma.

The effect of ALT on intraocular pressure (IOP) was evaluated in 60 eyes of primary open angle glaucoma. A reduction of more than 5 MMHg of IOP was achieved in 40% eyes 3 days after ALT. in 65% eyes the final intraocular pressure of 21 mmHg was achieved without medical treatment and 25% eyes with local antiglaucoma medication. There was transitory rise of IOP, 1-3 hours after ALT in 40% eyes. The visual field remained unchanged in these eyes upto a followup of 2 years.

Fine needle aspiration biopsy in the diagnosis of adnexal lesions: A cytologic histologic correlation.

Fine needle aspiration biopsy was carried on in a total number of 28 patients, 12 having lid and 16 having orbital masses. Overall diagnostic accuracy in lid, adnexal and orbital masses was 85.71% Positive cytological identification was in 11 of the 12 cases of

lid masses hence the diagnostic accuracy was 91.67%. Diagnostic accuracy in orbital masses was 81.25%. Negative cytologic identification was because of flat lid lesions, posteriorly located lesions and highly fibroid lesions. No complications were seen in any of the patients.

Argon laser photocoagulation in the treatment of CSR:

Study was carried out to compare the serial changes in contrast sensitivity, colour vision and visual recovery in age matched patients of treated and untreated groups. This was a prospective randomized clinical study in 30 patients, 15 in each group. In group I patients, treated with the Argon laser photocoagulation, recovered snellen visual acuity on an average of colour vision in the two groups showed no statistical difference. The contrast sensitivity recovery was quicker in control group than in laser treated group and it did not recover in the normal levels in both the groups at the end of 3 months. There was no statistical differences in the recurrence ratio in the two groups.

Management of keratomycosis with 1% silver sulfadiazine (SSZ) A prospective controlled clinical trial.

Efficacy of 1% silver sulfadiazine (SSZ) was evaluated in 110 patients of keratomycosis. The majority of the patients were living in rural areas and were farmers (48.29%). A positive history of trauma was found in 43.6% of the cases, whereas 30.9% of the patients gave history of long term use of topical steroids. The most commonly encountered organism were Aspergillus, Fusarium and Candida respectively. SSZ was found to be highly sensitive against Fusarium (88.8%), in Candida the efficacy was still higher (100%) Aspergillus, however, had a success rate of 66.7%. The drug offers a distinct advantage in management of Fusarium Keratitis which is known to be relatively resistant to other antifungal agents. Silver Sulfadiazine was well tolerated by the eyes. There was no clinical evidence of argyrosis. No systemic side effects were observed during the study

period. It is concluded from the present study that the 1% SSZ is a potent, broad spectrum, non-toxic and effective antifungal agent for the management of human keratomycosis

Prophylactic and curative effects of flavonoids in lenticular opacities on experimental cataractogenesis:

The capacity of two aldose reductase inhibitors viz qurectin and myrectin to control cataract development was assessed in rats fed with 30% galactose diet for 40 days. A reduction in slowing down or arresting the development of cataract (stage I to IV with increasing capacity) on slit lamp microscopy and photographic documentation was taken as indication of anti-cataract action. It was observed that qurectin (0.5% eye drops) and myrectin (1% eye drops), offered significant protection in the onset and development of various stages of cataract as compared to control eyes. The difference being statistically significant ($P + 0.001$). Biochemical studies revealed that the formation of dulcitol in flavonoid treated rats was slow at different stages of cataract development, as compared to galactose treated rats, indicating enzyme aldose reductase inhibiting activity of the two drugs. There was no evidence of any ocular or systemic toxicity in animals with either of the flavonoids. The results of present study reveal that topical application of above flavonoids possesses potentials of anti cataract agents. Clinical trials on the above lines are being contemplated.

To evaluate the relative efficacy of various artificial tear substitutes in dry eyes - (A double blind clinical study).

A clinical study was carried out to evaluate the relative efficacy of various tear substitutes viz. Methyl cellulose (MC), Polyvinyl alcohol (PVA), and their combination with Dextran 40 and EDTA in dry eye patients. It was observed that in terms of subjective relief of symptoms, combination of MC-PVA, Dextran and EDTA showed the best response. The retention time was also highest with this formulation (75-90 Min): But

Break uptime factor also showed best results with this tear substitute. No side effects were observed with any of the drugs.

Comparative evaluation of various corneal preservative mediums (an experimental study).

In the present study Ksol, M.K. medium & EPII and modified RPC medium were compared for preservation of dog's cornea. An attempt was also made to study the whole globes in each medium. The results of our study indicate the K-sol, EPII and modified RPC medium are useful for the preservation of cornea upto 12 days. M.K. medium is not suitable for the preservation of cornea beyond 4 days. Stability studies revealed that M.K. medium and modified RPC medium are stable up to 6 months at 40 C.

Management of pseudomonas corneal ulcers with polymyxin B.

Polymyxin B is one of the drugs of choice in the treatment of pseudomonas corneal ulcers. It is commercially available in the concentration of 5,000 and 10,000 IU/ml along with other antimicrobial agents like neomycin and trimethoprim. In the present study efficacy of Polymyxin B was studied in a dose response manner in experimentally produced pseudomonas corneal ulcers of various grades in the rabbit eye. An attempt was also made to compare the efficacy of two commercially available preparations containing 5,000 and 10,000 IU/ml. It was concluded that concentration of 5,000-10,000 IU/ml were only effective in healing the corneal ulcers of grade I and II. However, for the management of deeper ulcers (grade III, IV and V) higher concentration of polymyxin B (25,000 IU/ml) at the frequency of every hour for the first 4 days is the minimum requirement. It is recommended that concentrated formulation of polymyxin B be made available in Indian Market for the effective management of Pseudomonas corneal ulcers.

Electro-diagnostic test in retinal detachment:

Electrodiagnostic tests were carried out in 35 patients of anatomically settled retinal detachment. The tests were ERG & VER. Though the ERG was not significantly affected in cases of functional failures (i.e. V.A. of less than 6/60 at 3 months post-operatively) the amplitudes of the VER were significantly reduced in functional failures.

Iris angiography in diabetic retinopathy:

Iris angiography was carried out in 10 diabetic patients each of no DDR, BDR & PDR. Results revealed that sector filling defects over the iris and non-perfusion areas were seen significantly in patients of uncontrolled diabetes with PDR.

Roper hass F.B. locator and ultrasonic evaluation of intra-ocular foreign bodies:

For accurate detection of intra-ocular bodies, combined use of the Roper-Hall locator and Ultrasound was done. Results determined that combined use of the Roper Hall locator and A & B scan ultrasound was most helpful in locating and determining the exact nature of F.B.

Echographic analysis of metallic intra ocular foreign bodies (expt. study).

Various metallic foreign bodies viz. steel, zinc, copper, brass, aluminium & tin were put in scleral pockets of cadaver human eyes. A-Scan ultrasound was carried out in these cases, which revealed that the echo-spike could not differentiate between the various metals though the reverberation echo pattern was different in different metals.

Prophylactic management of retinal detachment in choroidal coloboma:

Study conducted in patients with choroidal coloboma without associated retinal detachment.

Prophylactic delimiting of posterior margin by Argon Laser and anterior margin by cryopexy were successful in preventing retinal detachment. No case of retinal detachment was seen in a one year follow up.

Communicating intra-vitral cysticercosis:

This study highlighted the varying echo-patterns in cases of intra-ocular cysticercosis operated at our centre. An unusual case revealed an intra-vitreous cyst with communication into the sub-retinal space. This case was effectively removed by the direct transscleral approach.

Specular microscopy of unilateral hard contact lens wearers:

In this project patients using PMMA contact lens in one eye were evaluated for endothelial changes following the contact lens wear. The patients included had been using contact lens for at least 5 years. A drop in the cell density, pleomorphism were the highlights of the changes noticed.

Pitfalls in aphakic contact lens fitting:

23 consecutive aphakic patients reporting to the contact lens clinic were examined for corneal thickness, endothelial status and curvature. It was found that aphakic corneas tended to be thicker, irregular in curvature, and have thermodynamically unstable topography. These cases deserve a careful follow up and tolerate lenses with high oxygen transmission.

Indomethacin as an adjuvant to pupillary dilatation:

Patients undergoing ECCE or ECCE + IOL were treated with topical indomethacin drops and oral tablets. Pupillary dilatation was found to be more stable with the use of indomethacin.

Sulindac in diabetic senile cataracts:

Sulindac 1% eye drops were used in one eye; contralateral eye served as control. Followup ranged from 3 to 10 months. 21 patients were studied. Data analysis revealed it to be effective in slowing down diabetic senile cataracts.

Glutathione in senile cataracts:

Glutathione 2% eye drops were used in one eye; contralateral eye received placebo drops and served as control. Follow up ranges from 3 to 19 months. 40 patients were studied. Data reveals no effectivity in slowing down senile cataracts by this drug.

Systemic aspirin and vitamin E in senile cataracts:

Systemic aspirin (325 mg: 1 Tab OD) and vitamin E (4000 mg. OD) were given to treatment group of senile cataracts; Control group received placebo tablets, follow up ranged from 3 months to 24 months. 80 eyes were studied in each group. Data analysis reveals aspirin to be effective in slowing down progression of senile cataracts; vitamin E was not effective.

Argon laser suturotomy - A new technique for correction of surgically induced astigmatish

The study included 40 patients of intra ocular lens implantation with post operative astigmatism of more than 4 diopters. A comparison between suturotomy using Argon Laser and surgically suture removal was carried out. It was concluded from the study that Argon suturotomy of the suture in the steeper meridian resulted in significant fall in the astigmatism. The routine use of Argon Laser suturotomy is recommended for the correction of surgically induced astigmatism.

Evaluation of post cataract extraction blebs:

20 cases of post cataract extraction blebs were taken for study. Various methods like bleb cauterisation with diathermy (10 cases) surgical

excision (6 cases) and cryo application (4 cases) were evaluated as regards changes in corneal endothelium. We found that bleb cauterisation do better with diathermy as regards the changes in corneal endothelium, but recurrences were fully prevented only by surgical repair.

Case control study in senile cataract:

In a hospital base case control study of 1441 patients with age related cataracts and 549 controls, we studied association between types of cataract and a number of physiologic, behavioural, environmental and biochemical variables. Using polycholomous logistic analysis we found an increased risk of cataract with lower educational achievements (all types), use of aspirin less than a month (posterior subcapsular and mixed cataract), high blood pressure and diet low in selected nutrients.

Clinical evaluation of acetyl salicycic acid and sodlum chromoglycate in vernal keratoconjunctivitis:

Topical corticosteriod is the mainstay of therapy for vernal keratoconjunctivitis. Because of the known severe side effects of the long term therapy of this drug, other modes of treatment are being investigated. A randomised group comparative study in 96 eyes of 48 patients was conducted to evaluate the usefulness of oral acetyl salicylic acid therapy. All the patients were graded according to severity of ocular signs and symptoms. The study was carried out during the month of February and March. In group I, 16 patients were treated with topical 2% sodium chromoglycate, group II 16 patients were treated with oral actylsalicylic acid 65 mg/kg day, and in group III 16 patients were treated with both the drugs. It was observed that there was significant reduction of symptoms in both the groups. However, there was recurrence with in 4-12 weeks in significant number of cases treated by either oral acetyl salicylic acid or 2% sodium chromoglycate. But there was no recurrence till six months when the combined therapy was used. Therefore it was recommended that this therapy to be started in known

cases of vernal keratocon-junctivitis prior to summer season and continued for six weeks.

Bacterial analysis of doner eyes

A total number of 1516 donor eyes received from various sources during the year 1973-1985 were subjected to isolation of bacterial contamination. The bacterial cultures taken from the pre treatment eye ball showed positive growth in 366 (24%). Of 366 positive cultures 331 (22.1%) were bacterial and 35 (2.3%) were fungal. Amongst the bacterial the major contamination was by staphylococcus aureus, or albus, and pseudomonas aeruginosa. Gentamicin was found to be the most sensitive antibiotic against this group of organisms, next being chloramphenicol. Thus it can be concluded that treatment of cadaver eyes with a solution of normal saline containing 0.1-0.5 mg/ml of gentamicin, and 50/mg/ml of chloramphenicol for 10 minutes before preservation and 10 minutes before surgery will reduce the chances of graft infection and endophthalmitis to a greater extent.

Management of vernal catarrh

Use of systemic aspirin for the treatment of vernal Catarrh has shown favourable results. The evaluation of topical use of aspirin along with sodium chromoglycate and/diluted corticosteroid is proved to be beneficial in cases of spiring catarrh.

Surgery of pupillary membrane after ECCE:

The study was started to compare changes in corneal thickness, corneal endothelial and visual acuity recovery in cases treated with parsplana membranectomy and Yag Laser capsulotomy. 49 eyes of 38 patients with secondary membrane following ECCE, trauma, aspiration and needling of congenital cataract were subjected to parsplana membranectomy while in the other group Yag Laser capsulotomy was done as an OPD procedure. Opening in the membrane was achieved in all cases in both groups. Patients in Yag Laser group with membrane thickness of 1.20mm to 1.26mm needed second

sitting. Improvement in vision was related to the status of posterior segment of the eye prior to these procedures. There was no significant difference in visual improvement in two groups. Intraocular pressure was lower in parsplana membranectomy group on the 1st post operative day and persisted for one week whereas there was increase of I.O.P. on the 1st post-YAG day. There was progressive loss of endothelial cells at one month and 3 months in both group. More in pars plana membranectomy while no change in corneal thickness was seen in Yag Laser group. CME was seen in both groups of patient.

Clinical evidence for light induced thermal damage in cortical cataracts:

A prospective study was undertaken to confirm our clinica impression that cortical opacities are rare in the upper part of the lens. Analysis of 148 eyes with cortical opacities showed that only 14 eyes (9.45%) had opacities in the area between 10 and 20 o' clock hours. We suggest that this is because of protection offered by the upper lid normally covering this area and protecting it from light induced damage. Our data provides clinical evidence and support to the theory that light can cause thermal damage to lens mediated by pigmented iris tissue in cortical cataracts.

Marfan syndrome and retinal detachment:

Complete dislocation of lens is a rare feature of Marfan's syndrome. We observed four cases with bilateral complete posterior dislocation of lens in established Marfans syndrome, over a one year period. We propose that liquefaction of vitreous gel alongwith distrupction of posterior hyaloid face as a result of degenerative process could be a major factor in causation of complete posterior dislocation in this disease.

Study of saccades in Parkinsonism: (NSC, RPC)

Studies on tissue receptors & metabolic effects of phenytoin: (NSC, RPC)

Evaluation of forskolin in management of open angle glaucoma. (Nuc. Med., RPC)

Study of the prevalence of primary open angle glaucoma and ultrastructural study of trabecular meshwork in diabetes mellitus with reference to NIDDM/IDDM. (Biophys, RPC)

Bio availability of pilocarpine nitrate and borate in aqueous humour and their clinical evaluation with clonidine (Clinico-experimental study) (Nuc Med, RPC)

Genetic study of congenital glaucomas: (Anat, RPC)

Research Continuing

Exfoliative cytology of contact lens wearers

Contact lens wearers having pupillary hypertrophy and allergic conjunctivitis are being subjected to conjunctival scraping to determine the changes at the cellular level. It is expected to unreveal some of the unanswered queries regarding GPC (Giant pupillary conjunctivities) in contact lens wearers.

Endocapsular implantation of iol cases:

IOL implantation is being done using Dada's capsulotomy incision and the cases are being evaluated for the corneal status post-surgery. Endothelial damage appears to be much less in these cases. Statistical analysis is in progress.

Asprin & indomethacin in diabetic retinopathy - A double blind control trial:

The study aims at evaluating the role of medical therapy in halting or reversing the diabetic retinopathy changes. Patients were randomly allotted to three groups based on treatment schedule. Results were analysed every month for six months by assessing visual

acuity, fundus picture & fluorescein angiography. Since the study is double blind and is not complete we do not know the results in different groups; however, it was observed that more number of cases remained far from being improved. The study is continuing and the result will be known only after it is complete and code is broken and results analysed.

Effects of open vs. closed method of intraocular lens implantation on cornea using two different irrigating solutions.

The effect of using balanced salt solution and BSS + and using 2 different techniques of IOL surgery i.e. open and closed methods are being evaluated.

Data base operation research on mobile eye camps:

Nation wide collection of observational data regarding various parameters including safety of surgery and cost effectiveness is being collected. So far 12 eye camps have been visited.

Evaluation of antiprostaglandin drugs in post-operative inflammations in cataract surgery:

As a substitute for corticosteroid therapy, this study is evaluating indomethacin, aspirin and fluribiprophen in checking post operative inflammatory reactions following cataract surgery.

Aetiopathogenesis and management of post-operative endo-ophthalmitis:

Endophthalmitis cases were randomly distributed to treatment with parsplana vitrectomy, intravitreal injections and medical control of inflammation by the drugs. The results are being evaluated in terms of visual gains, resolution of vitreous debris etc. So far 30 cases have been included in this study.

Continuous monitoring of hazards of corticosteroids in ocular therapy:

This study is a wide based long term follow-up study to monitor side effects of local steroids in terms of bacterial flora, cataract and dry eye. 25 cases are being followed in this study.

Management of UP-drawn pupil:

The updrawn pupils are being managed surgically, with yag laser and with Argon Laser pupiloplasty. So far only 8 cases are included in this study. The beneficial effects of modalities will be evaluated.

Evaluation of various anti cataract drugs:

Various drugs like catalin, catabell, vit. C benxyl alcohol and sulindac are being evaluated in patients of senile cataract. The patients are being followed in cataract clinic.

Evaluation of various modalities for nuclear delivery in ECCE:

The delivery of the nucleus of cataract lens can be done by various methods. It effects the endothelial status of cornea and lens material left back. These are being evaluated by measuring corneal thickness and corneal endothelial specular microscopy.

Genetic profile of senile cataract (Dermatoglyphics):

Since aetiology of senile cataract is not known and phenomenon of anticipation has been described the patients are being investigated for their dermatoglyphic profile besides pedgree analysis.

Lens thickness changes in corticosteroid therapy:

The use of local and systemic corticosteroids cause cataract by probably lens permeability changes. We are trying to see whether there is increase in thickness of crystalline lens in patients getting corticosteroid therapy.

Prevention of diabetic cataract with topical aldose reductase inhibitors in rats:

Rat(s) with sugar cataract formation by the use of aldose reductase inhibitors will be treated with various aldose reductase inhibitors. The experimentation is going on.

Evaluation of mydriatic effect of various drugs in ECCE:

In ECCE the constriction of pupil occurs in majority of the patients once the A.C. is opened. We are evaluating indomethacin and fluribiprophene and other drugs to achieve sustained mydriasis during cataract surgery.

Management of vernal catarrh:

We are evaluating drugs and combinations like betamethasone (1:10 diluted); oxymetazoline and 1:10 diluted betamethasone, sod. chromoglycate and 1:10 diluted betamethasone and acetylsalicylic acid drops in 100 cases of vernal catarrh.

Co-relation of types of cataract and lens capsule changes to the opacification of the posterior capsule:

The posterior capsule left back in ECCE gets opacified in due course of time in some cases. Endeavour in this study is made to relate the type of cataract and the anterior capsule to the post capsule opacification.

Evaluation of lasers in angle closure glaucoma:

A total of 60 eyes with primary angle closure glaucoma were studied. Yag laser peripheral iridotomy controlled IOP in 25% eyes without local medication and another 65% with local 2% pilocarpine drops. 10% eyes required combined local medical therapy. After goniotomy no patient could be controlled without local medication. The study is in progress.

Evaluation of surgical techniques in cicatricial entropion of the upper LID:

The evaluation of wedge resection of tarsal plate with modified wedge and relaxing incision is being carried out. Out of 54 cases operated so far in these two groups the results were better in second group in which 18 patients were well corrected as against 11 patients of group I. The postoperative, Schirmer's test and BUT did not show any significant difference in 2 groups. The complications encountered in these cases include lid notching, corneal abrasion and residual entropion.

Comparison of CT verses USG in orbital lesions:

A minimum of 20 patients were to be studied under the project, out of which 17 patients have already been studied. Out of these cases 10 have shown a positive correlation between USG, CT and histopathological diagnosis. 3 cases have had similar diagnosis on USG & CT scan, which were negated by histopathology. In 4 cases there was no correlation. At the present stage it seems that CT Scan is more effective than USG in the diagnosis of orbital S.O.L.

Morphological and histological features of levator aponeurosis in ptosis:

The aim is to correlate the amount of ptosis levator action and pre-operative lid fold with the histopathological findings of levator aponeurosis in different forms of ptosis. 23 cases of congenital simple partial ptosis including 3 patients with Marcus Gunn phenomena and 1 acquired ptosis have been worked up clinically and with clinical photographs. Levator palpebral muscle resection surgery was done and specimen sent for histopathological examination. Clinicohistological correlations are continuing.

Intraocular penetration of topical acetazolamide and its effect on intraocular pressure:

Using topical 2.5% Acetazolamide labelled with TC 99 in 0.9% saline and 0.3% methylcellulose in rabbit eyes, it was found that peak aqueous concentration 2.6 ug/100 ul and 7.2 ug/100 ml respectively was reached at 2 hours. The posterior chamber aqueous concentration was 0.32 mg/100 ul with saline and 0.66 ug/100 ml with methylcellulose. The levels were maintained upto 6 hours after instillation. Average fall in pressure using 2.5% acetazolamide in saline was 3.75 mm Hg and using 2.5% acetazolamide in methylcellulose was 4.39 mm Hg in water loaded rabbits. Increasing the concentration to 5% did not cause any further reduction in pressure but decreasing concentration to 1% proved to be less effective.

Retinal detachment in pseudophakics:

Pseudophakic retinal detachment are on the increase with increasing I.O.L. implant surgery. Various difficulties are being encountered in retinal detachment surgery for such patients namely lens-edge reflections and difficulty in visualisation of the retinal periphery. Beside, I.O.L. subluxation is also a risk posed in pseudophakic patients undergoing R.D. surgery.

Cryopexy in pars planitis:

Pars planitis is an enigma. Despite steroids and antitubercular drugs, the course of this disease is chronic leading to complications of posterior subcapsular cataracts and chronic macular oedema. We are investigating the effectiveness of the role of cryopexy over the pars plana as an early treatment schedule and in about 5 patients who underwent this procedure, the activity of the disease process did subside.

Suppression in exodeviations:

The type of suppression in exodeviations has not been well established, it is also not clear how is it triggered. The methods used, for charting binocular visual fields are found to have artifacts. We have

devised a new method with the help of polarised light and filters to chart the binocular fields under near physiological conditions in normals, intermittent exotropes and alternating exotropes. We shall compare the findings with those on leas screen which causes relatively more dissociation.

Evaluation of therapy in optic neuritis:

The use of corticosteroids in the therapy of optic neuritis is not universally accepted. It has been observed that cases with corticosteroids have the same final results. We are evaluating the role of retrobulbar injection of steroids in a double blind masked trial.

Changes in refractive error following extra-ocular muscle surgery:

It has been observed that the refractive error may alter following extra-ocular muscle surgery. We are studying the refractive error by retinoscopy, automated refracto meter and intraocular pressure by applanation tonometry, before and after horizontal extra-ocular muscle surgery to evaluate the changes in refraction.

Fusional tolerance of aniseikonia in space:

The fusional tolerance of aniseikonia in space has not been well studied. With the help of a new improvisation on stereoprojectors the fusional tolerance of dissimilar images in front of two eyes is being studied. The dis-sociation is being achieved by polaroid filters and glassess. Special projection slides have been made both for stereoprojector and synoptophore. A comparision of fusional tolerance by the two methods will be made in normal subjects and subjects with different refractive errors, to establish norms for fusional tolerance in such adverse situations, which are of practical importance in monocular aphakes rehabilitated by glasses, contact lenses or intra.ocular implants.

Convergence sustenance:

The project envisages to evaluate the time period for which the convergence can be sustained for near work. It is a common problem of desk workers, students etc. to have eye strain on near work which often ascribed to convergence insufficiency. The work is under progress and is being tabulated for evaluation.

Edge light pupil cycle time in optic nerve disorders:

Edge light pupil cycle time (PCT) is a quantitative measure of the pupillary reactions to light depending on the functioning of the afferent arc of the pupillary reflex and independent of the functioning of the other eye. The aim of this study is to establish mean values of PCT in normal Indian population and observe it in optic neuritis. The study is under way using the slit lamp with a horizontal slit beam in similar background illumination conditions and the results will be evaluated on completion of study.

Surgical management of after cataract:

The operative and visual outcome of conventional surgical techniques are being evaluated in various types of updrawn pupil and after cataract.

Congenital absence of lacrimal puncta:

Analysis of these cases is continuing, with the evaluation of various lacrimal procedures in the management of this troublesome entity.

Evaluation of congenital nystagmus:

A detailed clinical analysis and investigations of these children with congenital nystagmus, including VER, are continuing.

Role of topical indomethacin in vernal kerato-conjunctivitis:

The preliminary results in a few children being treated with topical indomethacin, are quite encouraging.

Argon laser photocoagulation in acute CRVO:

In this study so far 10 patients have been registered but the followup is not yet complete and the work is being continued as was reported in the last report. It is a prospective randomized clinical study.

The combined peripheral cryo and photocoagulation in eales disease:

This is being done in cases which require multiple sittings of photocoagulation. The study is in progress, the first part of the study of peripheral cryo is nearly complete and showed that there is beneficial affect in certain cases. The detail of the study is yet to be completed.

Role of indomethacin in keratoplasty:

Release of prostaglandins following opening of anterior chamber is known. A clinical trial with indomethacin, a prostaglandin inhibitor is being carried out before keratoplasty. The changes in corneal thickness and intraocular inflammation are to be evaluated.

Role of patching in the management of epithelial defect:

Epithelial defect following keratoplasty occurs very often. If care is not taken appropriately there is danger to the graft. Methods, such as patching and tarsorrhaphy are being compared for the treatment of this complication.

Effect of systemic toxins on corneal endothelium:

It is a colossal problem in India to get the donor eyes. There are few contraindications for the donor eyes to be used. In India the death due to

barbiturates and organo-phosphorus is known. Whether these eyes can be used successfully for the keratoplasty is not known. An attempt is being made to see the effect of the same experimentally.

Treatment of eye bank eyes:

In our experience about 30% of donor eyes show presence of infection before used for keratoplasty. Various drugs such as gentamycin, betadine and silver sulphadiazine are being used experimentally with different concentration.

Cyto-immunological profile in contact lens wearers:

The role of contact lens in corneal and external ocular disease has increased dramatically. Side effects of contact lens wear can be attributable to physical, physiological, immunological and psychological insult of contact lens. Evaluation of conjunctival cellular profile has been started in patients before and after fitting soft contact lenses & gas permeable contact lenses in both the eyes. These findings will later be correlated with tear and serum IgG in these patients.

Histopathology of the upper lid in cicatricial entropion

Cicatricial entropion is mainly caused by trachoma. The TRIC agent invades fornicial & palpebral conjunctiva and causes cell degeneration, proliferation and epithelial scarring. Toxins/chemical agents released from TRIC agent cause tarsitis, adenitis, folliculitis, fibrosis or a combination of these. Histology of the resected tarsal plate is being studied for a clinicohistologic correlation of entropion.

Imaging of orbital space-occupying lesions with ultrasonography and late generation C.T. scanners with clinico- pathological correlation.

The aim of this study is to correlate patterns seen on USG and late generation C T scanners of orbital tumours with clinical and histological diagnosis and to evaluate accuracy of each of these methods for a particular tumour type. Resected orbital masses have been received for histological evaluation after the patient has gone through USG & CT scan examination.

Studies on keratomycosis in India (W.H.O.)

Culture filtrate antigens from *Aspargillus fumigatus* and *fusarium* were prepared. The crude antigens were fractionated by Gel chromatography on sephadex G-100. Four major fractions were obtained from *A. fumigatus* and two of *fusarium*, Molecular weight of the fractions using standard molecular weight markers were determined. PAGE of the crude antigens of *A. fumigatus* revealed 11 bands. The immunoreactivity of crude antigens from *A. fumigatus* was tested by Enzyme linked immunosorbent assay using standard antisera and control serum samples. Compared to the standard antisera, control samples gave negligible reactions. The immunogenicity of different fractions obtained and their use in immuno diagnosis is being investigated.

Further evaluation of 1% silver sulfadiazine in the management of keratomycosis:

The aim of the present study is to further evaluate the efficacy of 1% silver sulfadiazine in larger series of keratomycosis and to observe its side effects after long term use. An attempt is also being made to study whether SSZ can also be used for the management of mixed infections of the cornea.

Prevention of cataract development by topical sulindac in experimental cataractogenesis

Efficacy of sulindac a potent aldose reductase inhibitor, is being studied as an anti-cataract agent in the galactose induced cataract in rats. Sulindac 1% eye drops are being applied four times a day and compared with saline treated eyes. The preliminary

results indicate that the drug is quite effective in controlling the cataract development, in this model of cataract.

Biometric ocular changes after retinal detachment surgery

Conflicting results have been found on axial length bio-metry in different studies. This study has been under taken to study the biometric parameter and vitreous changes before and after surgery in case of retinal detachment by ocular ultrasonography. 30 cases are to be studied who will be operated for retinal detachment. The ultrasonography will be done to see change in vitreous and biometric parameters including A/C depth. lens thickness. The changes will be seen at 1 week & 6 months interval.

Aphakic cornea

A prospective study is being undertaken to study the effect of intra capsular cataract extraction, extra capsular, posterior chamber IOL on Cornea : Specular microscopy pachymetry and keratometry was done in these cases at 6 weeks and 12 weeks post operatively 20 patients in each group are included. Results are being analysed.

Long term corneal endothelial changes in contact lens wearers.

12 patients having myopia less than 6D were fitted with XL-30 lens in the right eye and PMMA in the left eye. Patients were followed up for a period of 6 months. Endothelial cell loss was found to be 3.9% in PMMA group and 3.3% in XL-30 group. There was no statistical difference between XL-30 and PMMA groups.

A Study of variations in refractive error during the first six months of contact lens use in low to moderate myopes, and to compare the results in hard (PMMA) and gas permeable lenses.

27 young patients with low to moderate stable myopia were fitted with PMMA lenses in 27 eyes and XL-30 gas permeable lenses in 27 eyes. Refractive variations including astigmatism, and corneal curvature were studied during 6 months of use and 21 day after lens withdrawal. No significant variations were seen in first six months of wear. On withdrawal myopia decreased, astigmatism (with the rule) increased and cornea flattened transiently. All variation appeared later, stabilized early and were lesser in degree in gas permeable lens wearers, 'spectacle blur' is less frequent in gas permeable lens wearers and their superiority was established over PMMA lenses. It was concluded that glasses should be prescribed at least 21 days after withdrawal in contact lens wearers.

Randomized controlled trial of argon laser photocoagulation in senile macular degeneration.

This is a prospective randomized study of patients with SMD with subretinal neovascularization. A total of 30 eyes were included in the study and were divided into 2 groups of 15 eyes each. Patients chosen has SRNV away from the foveal avascular zone as shown by detailed clinical examination including Goldmann three mirror examination, amsler grid and fluorescein angiography. Patients in the treatment group received photocoagulation with argon laser using spot size of 50-200 U and an exposure time of 0.1-0.5 sec. Patients in treatment and control group were followed up at 3 weeks, 3 months and 6 months, interval. Result of the study is being evaluated.

Ultrastructural study of trabecular meshwork in congenital glaucoma: (Bioph, RPC)

Tubercular status of CSR (Microb, RPC)

New Research

1. Epithelial specular microscopy of contact lens wearers.
2. Scanning electron microscopy of I.O.Ls.

3. Immunological studies in Graves ophthalmopathy.
4. Comparative efficacy of azothioprין & corticosteroids in management of Graves ophthalmopathy.
5. Analysis of tear film in Graves ophthalmopathy.
6. Topical timolol and atropine drops in retinal detachment.
7. Epithelial surface disorders by specular microscopy.
8. Evaluation of topical 'Norfloxacin' a new fluoroquinolone in the management of bacterial infections of the eye.
9. To study the capacity of newer nonsteroidal anti-inflammatory drugs on enzyme aldose reductase and their anti-cataract action in galactosemic rats.
10. Evaluation of 'Flurbiprofen' a newer non steroidal anti inflammatory drug for the inhibition of intra-operative miosis (To maintain pupillary dilatation) during extra-capsular cataract surgery.
11. To evaluate the role of various calcium channel blockers as ocular hypotensive agents in experimental models.
12. Serology of trachoma and immunotyping of C.trachomatis strains causing trachoma in and around Delhi.
13. Detection of Acanthamoeba keratitis cases in India, a pilot study.
14. Evaluation of immunofluorescence assay using monoclonal antibodies in rapid diagnosis of Herpes simple keratitis.

15. Evaluation of antimicrobial drugs used in eye banks in experimental animals.
16. Evaluation of topical Sisomicin in experimental keratitis.
17. Morphological and histological features of levator aponeurosis in ptosis.
18. Immunocytology of aqueous humour and histopathology of iris in quiescent uveitis.
19. Neovascular glaucoma.
20. Cytoimmunological profile of contact lens wearers and its alteration after 2% sodium cromoglycate therapy.
21. Argon laser photocoagulation in retinal branch vein occlusion, its relationship with macular edema (Randomized prospect in clinical trial).
22. Diabetic retinopathy correlation with metabolic control and beta cell function.
23. Ultrasonic biometric changes after encirclage surgery in retinal detachment.
24. Macular changes in retinitis pigmentosa.
25. Comparison of various modalities of laser treatment in diabetic retinopathy.
26. Argon laser therapy in corneal vascularisation.
27. Evaluation of topical antibiotics in corneal ulcer.
28. Rapid diagnosis of viral corneal ulcer.
29. Method of collection and transportation of materials from corneal ulcers.

30. Role of topical vit. A in post keratoplasty epithelial defects.
31. Correlation of blood glucose and tear glucose in corneal ulcer.
32. Cellular pattern in cases of different corneal ulcers.
33. Tear film status in pterigium.
34. Methods of donor eye evaluation.
35. Evaluation of tear film in sticky eyes.
36. Ocular changes in chloroquine toxicity.
37. USG + CT scan evaluation in optic nerve trauma.
38. Comparative evaluation of US, CT + FRCP in pancreatic lesions.
39. 4 incision v/s 8 incision radial keratotomy for the correction of low to moderate myopia.
40. Evaluation of various techniques of anterior capsulotomy in extra capsular surgery.
41. Low-dose angiography in anterior segment lesions.
42. Inferior rectus disinsertion in retinal detachment.
43. Role of Pentoxifylline in diabetic retinopathy.
44. Post fluorescein ERG in preclinical D.R.
45. Pre operative ultrasonic evaluation in vitreous hemorrhage.
46. Management problem in post-keratoplasty aphakic retinal detachment.
47. Gird photocoagulation in diabetic maculopathy.

48. Central Eales - evaluation and significance.
49. Ocular problems with subtenons Wycort injection.
50. Role of electro retinography in CRVO
51. Anthracycline antibiotics in the inhibition of P.V.R. in retinal detachment.
52. Evaluation of sisomicin in the management of pseudomonas corneal ulcers.- an experimental study.
53. Optic nerve change in craniosynostosis.
54. A comparative clinical evaluation of cycloplegics in the younger age groups.
55. Dominant eye surgery in exodeviation.
56. Visual status in congenital glaucoma.
57. Effect of pilocarpine with varying concentration of clonidine in glaucoma.

AWARDS AND EVENTS

Distinctions, Awards, Honours

Prof. Madan Mohan: Received late M.P. Mehere cash award and citation for distinguished service in the prevention of blindness from U.P. Govt. for the year 1987-88; delivered Dr. A. Siva Sallam Memorial Oration at Coimbatore on 21.8.88 and oration at Amravati Netradan Function on 16.10.88.

Prof. P.K. Khosla awarded P. Siva Reddy oration gold medal by Andhra Ophthalmological Society.

Dr. H.K.Tewari awarded P. Siva Reddy gold medal oration for best national or international clinical research by AIOS at Madras for the year 1989-90;

awarded Indira Bhai Khare oration on "Lasers in Ophthalmology by IMA Nagpur.

Dr. Sushma Vashist was conferred membership of "National Academy of Medical Sciences".

Dr. Atul Kumar received the runners up Prize "Ophthalmic Quiz" conducted by 47th AIOS, Jan., 1989, Madras.

Dr. Mahipal Singh Sachdev awarded A.C. Aggarwal Trophy for Best Paper presented in Delhi Ophthalmological Society Annual Conference, 1988- "Argon Laser Sutureotomy- A new technique for correction of surgically induced astigmatism"; Certificate of Merit-Col Rangachari Session-Madras, Jan., 1989.

Significant Events

Prof. Madan Mohan appointed as external examiner in Ophthalmology by Alfateh University, Tripoli Sept. 1988; chaired WHO working group meeting in Tunisia November, 1988; attended the meeting of Indo-U.S. case control study on age related cataracts in U.S.A. July, 1988; appointed chairman working group on Control of Communicable diseases & Control of Blindness by the Planning Commission for 8th five year plan 1990-95.

Dr.P.K.Khosla appointed - Member Working Group on Control of Communicable Diseases & Control of Blindness by the planning commission for the 8th Five Year Plan, 1990-95. Selected member - to visit and observe eye camps being organised by Aravind Eye Hospital, Madurai.Appointed to inspect Rajan Memorial Eye Hospital, Jullunder by the National Board of Examination for accreditation. Consulting member in Ophthalmology, Indira Gandhi Institute of Medical Sciences, Patna, Bihar. Member-rehabilitation council in the field of visual disability, Ministry of Social Welfare, Govt. of India. Elected member and executive director of Indian Association of Advancement of Medical Education was coordinator of the ORBIS Project visit, 1988.

Prof N.N. Sood Visited West Berlin as WHO fellow for setting up quality control laboratory for tonometers at Dr. R.P. Centre; appointed member Academic Committee (a) Jiwaji University, Gwalior. (b) B.H.U., Varanasi; was convenor, P.A.C. Bhopal Gas Disaster, I.C.M.R; elected Vice President- Delhi Ophthalmic Society and is Consulting editor Indian Journal of Ophthalmology & Afro Asian Journal of Ophthalmology.

Prof. Prem Prakash was elected President- 3rd Biennial Conference of Strabismology Society India.

Prof. V.K. Dada was appointed Hony. member Scientific Committee International; Contact Lens Symposium Singapore, 1990. Hony Surgeon to President of India and Low vision aids expert for NCERT.

Dr. H.K.Tewari was editor proceedings of Delhi Ophthalmological Society, 1987-88; Executive and Governing Council member of National Society Prevention of Blindness India. Associate Editor, AFRO - Asian Journal of Ophthalmology. Consultant editor, Indian Journal of Ophthalmology.

Dr. Sushma Vashisht was president - Indian Radiological & Imaging Association Delhi Branch. Editorial board member- Indian Journal of Radiology & Imaging.

Dr. S.K. Gupta was Awarded 'Alcon Fellow' during the 8th International Congress of Eye Research held at San Francisco, USA, Sept. 4-8, 1988. Elected Secretary of the Indian Pharmacological Society (Delhi Branch) for the 3rd consecutive term. Nominated on the Advisory Committee of the "National Symposium on the Development of Indigenous Drugs in India". The Symposium was sponsored by WHO, I.H.M.M.R. and Indian Pharmacological Society. "Consulting Editor" of the Afro-Asian Journal of Ophthalmology.

Dr. Supriya Ghose was presented with an appreciation awarded by the Rotary Club, Dadri, U.P. 1988.

Dr. V. Menon organised symposium on inconcomitant squint at 3rd Biennial Conference of Strabismological Society of India; elected secretary of strabismological society of India.

Dr. H.C. Agarwal participated in the meeting "Proposed INDO-US Workshop on Biostatistics and Epidemiological methods in Ophthalmology" at I.C.M.R. 1989.

Dr. S.P. Garg was Invited by WHO as an expert to participate in the inter country workshop on training of trainee in Control of Blindness from Leprosy Kathmandu - Nepal October, 1988 and Presented with an appreciation award by Rotary Club Gurgaon.

Dr. R.V. Azad was elected President-National Association of Indian Doctors for Prevention of Nuclear War, Delhi State Branch; Elected Secretary Delhi Ophthalmological Society; Managing Editor-Indian Journal of Ophthalmology; Member Editorial Board, Proceeding of Delhi Ophthalmological Society. Organising Secretary-23rd Annual Conference of National Society for Prevention of Blindness.

Dr. Anita Panda was appointed as Incharge north zone by All India Eye Bank Association 1989.

Dr. Mahipal Singh Sachdev awarded Scholarship to attend 8th International Congress on Eye Research - USA.

HOSPITAL SERVICES

Medical Record Section

The work of this section has been divided into two parts (i) Indoor records (ii) Out patient department records including speciality clinics. OPD records of each unit has been given colour coding. The record section is following the unitary method i.e. awarding single number to patients attending OPD and speciality

clinic. This system is called serial unit numbering system, a system prevailing all over the world. All efforts are made to computerize the records. This year the Medical Records Section has been given more space in Rooms 101 and 102 for proper functioning and easy retrieval of the records. Statistics for the current year 1988 is appended herewith.

Medical Social Welfare Section

The Social services are provided in various areas of the hospital like OPD, indoor patients, Speciality clinic, casualty admission and enquiry counters. Information and guides are provided to OPD patients, to investigative services, afternoon clinics and hospital admissions. Regular Rounds of M.S.W. have been started in OPD and ward area to find out and solve the social problems of the patients. An average of about 500 patients are directed and helped at this centre every day. This section refers blind patients to schools and other Institutions for training and rehabilitation. In the year about 160 patients who had problem at the time of discharge were helped to go to their respective homes by giving them monetary and other help. A large number of patients were helped in their social and emotional problems. 170 spectacles were provided free of cost to the patients during this year. About 200 patients were given the benefit for purchase of medicines from the poor patients fund of the Centre. About 200 out station patients were helped to stay in Dharamshala during their treatment. The facility of railway concession is provided to facilitate handicapped and indigent patients. About 230 patients were helped in this way.

About 30 poor patients per month were recommended to avail intraocular lens free of cost from the Centre. Approximately 120 patients were exempted from hospital charges and investigation charges after making proper estimation of their economic status.

About 40 N.S.S. and other volunteers from Maitreyi College were posted at the important areas of the hospital for directing and helping the patients.

Health education programmes has been started in ward and OPD for patients and their attendants and relations.

Approximately 2,200 eye donation cards were collected this year through the medical social workers, N.S.S. and other volunteer organisations.

Control room

The Centre's control room on the ground floor has been established which functions round the clock. This has facilitated in the smooth functioning of the indoor services. All the complaints/problems in any area of the hospital are registered, recorded in the control room from where information about the complaint is disseminated to the functionary so that necessary action would be taken immediately within 12 hours. This has helped in evaluating the size and magnitude of the problem besides taking remedial action.

The Operation Theatre Complex (OT):

The OT complex on the 5th floor is divided into 4 wings i.e. A to D Wing. A Wing is being converted into office, workshop, linen stores and central sterilisation facilities etc.

'B' Wing: Local anaesthesia operations are carried out in this theatre.

'C' Wing: This has a pre-anaesthesia block and the conference hall.

'D' Wing: D wing has got four operation theatres and ear-marked for general anaesthesia. One recovery room and one changing room for staff nurses and female doctors also exists.

In total fifth floor has 9 OT with 11 tables.

The operation theatres are provided with close circuit TV for teaching purposes to the undergraduate and post-graduate students.

Laser laboratory

The laser laboratory near the OPD complex provides upto date treatment in various ophthalmic disorders. Photocoagulation treatment with Argon Laser and ND-Yag Laser is available. These services are provided on all working days. Last year over 3000 patients received Argon Laser treatment.

Casualty Services

The casualty service runs round the clock for any ocular emergency, since Nov., 1987. This service has attended to 6700 New cases and 8969 follow up cases during the period from March, 1988 and March, 1989. Facilities available at the casualty include corneal ulcer investigations and treatment cell (783 cases), glaucoma screening (diurnal eye tension variation 1412 cases), Eye donation and collection service.

Ocular microbiology lab

The section continues to render diagnostic services for out door and indoor patients. Also, it continues to check sterility in the operation theatres as well as of the preparations like eye drops used in wards, irrigating fluids, medicine used for preservation of cornea & ocular preparations dispensed at the Centre. This year a total of 15,113 specimens from OPD and Wards have been cultured for bacteria and fungi. The section continues to give opinion on KOH preparations, Gram and Giemsa stained smears from the infection cell, wards & O.T.'s. It also continues to study the microbiol contamination of the cadaver eyes.

Ocular biochemistry section

The clinical biochemistry laboratory continues to render laboratory services for out door and indore patients. This year 9000 samples were analysed for blood sugar, for the indoor and out door patients and total number of samples sent to A.I.I.M.S. is 1662.

Ocular pathology section

The section continues to provide diagnostic facilities in the fields of clinical pathology, histopathology and cytopathology. Haemograms, urine and stool examination are being carried out both for indoor and out door patients. During the year 40,4115 investigations were done for clinical pathology, 893 samples for histopathology and 276 samples were examined for cytopathology.

Ocular pharmacology section

The section continues to monitor the supply of essential, sight saving and various other supportive drugs to the hospital patients. At present 42 formulations, are being manufactured in the manufacturing pharmacy section. Some of them are not available indigenously and have been developed by our own research and development. Strict quality control measures like osmolarity PH. Spectrophotometric analysis and Microbiological testing are being followed. Corneal preservative medium is being manufactured to fulfill the needs of national Eye Bank. This is the only centre in the country where technology for the manufacture of corneal preservative medium has been established. The section is also engaged in the detection of Argemone Maxicana (Sanguinarine) which is often used as an adulterant to the mustard oil and caused glaucoma and many other complications of the eye.

Orthoptics & special orthoptics

In general orthoptics a total of 52,549 cases were catered which included orthoptic check up and convergence exercises imparted to the patient in addition to 5,287 cases seen in ocular Motility and Amblyopia clinic.

In the last year the Orthoptics section has a new separate wing for special orthoptics investigation from February '88 onwards. In the special Orthoptics, investigations for paralytic squint check up like lees

screening Diplopia charting, 9-gaze synoptophare examination were performed, in addition to visual acuity examination in nonverbal children and pleoptics. Three new instruments were commissioned : Accomodation synoptophore, stereo-project or and Oculus vision screener. A total of 5,264 investigative procedures were performed.

The general Orthoptics has a staff of four Orthoptists one of whom also imparts training of B.Sc. (Ophthalmic Techniques) students. The special Orthoptics is functioned by one orthoptist.

Statement showing the data of hospital statistics for the year 1988-89

	<u>New Cases</u>	<u>Old Cases</u>	<u>Total</u>
1. General O.P.D	91131	73597	164728
2. Emergency	7139	--	7139
Total	98270	73597	171867

Speciality Clinic

1. Cornea clinic	2286	2173	4459
2. Lens clinic	355	267	622
3. Uvea clinic	544	931	1475
4. Contact Lens clinic	1305	--	1305
5. Glaucoma clinic	1893	3515	5408
6. Ophthalmoposy clinic	1414	1356	2770
7. Tumor clinic	52	--	52
8. Paed. Ophthalmology clinic	1329	1265	2594

9. Tramma clinic	672	660	1332
10. Retina clinic	1967	3164	5131
11. Neuro ophthalmology clinic	880	891	1771
12. Medical ophthalmology clinic	1574	2833	4407
13. I.O.L. clinic	264	---	264
14. Vitreo retinal clinic	857	969	1826
15. Laser clinic	337	366	703
16. Ocular surface Disorder	309	312	621
17. Orthoptic clinic	7035	32281	39316
18. Squint clinic	3073	11992	15065
19. Child Health Clinic	---	---	---
20. Refraction clinic	---	37791	37791
Total	26146	100766	126912
Grand Total	124416	174363	298779

Indoor figures

1. General Admission	7537
2. Casualty Admission	1111
3. Private Admission	634
4. Short Admission	413
Total	9695

Dietetics services

Dr. R.P. Centre Dietary Services serve food for the patients admitted in the Hospital (R.P.C.) The served diet includes normal and therapeutic diets.

During the year 1988-89 the total No. of General ward patients Fed were 83,588 and 5,191 were private ward patients. The details of the type of the diet served is as follows :-

1) Total No. of private diets	5191
a) No. of European diets	122
b) No. of Indian diets	5069
2) Total No. of general ward diets	83,588
a) No. of normal diets	75,549
b) No. of Khichari diets	3,325
c) No. of Mills diets	46
d) No. of special feeds	94
e) No. of private diets in general wards.	574
3) Details of therapeutic diets	47,405
a) Diabetic diets	2,407
b) Low protein diets	7
c) Salt restricted diet	1,793
d) Vitamin rich diets	107
e) Bland diet	2
f) Supplimentary feeding diets (Infants)	1,969

g) High protein diets	41,085
h) Reducing diet	11
i) Homocysteinuria diets	24

The therapeutic Diet supplied by the dietetics services comprises of the 56% of the total diets served in the general ward as well as private wards.

O.P.D.

The dietetics services also runs a nutrition clinic for the children coming to the Paediatric Ophthalmology clinic. Approximately 1200 children were given nutrition and health Education in the clinic. For the children admitted in the wards, nutrition and health education classes are organised once a week. Eleven patients of Retinitis Pimentosa were given low copper diets.

Training programme

Every year Dietetics Diploma & Food and Nutrition M.Sc. Students from various Universities are coming to take hospital dietetics training. They are also posted in R.P. Centre. Total No. of such students was 17 this year.

Teaching

Lectures on Nutrition related to the eye diseases were organised for nurses.

Clinical investigative done in central investigation lab report 1988-89

1. Auto refraction	9021
2. Applanation tonometry	7978
3. Laser interferometry	2494

4.	Specular microscopy	3728
5.	Anterior segment photography	2701
6.	Goldmann perimetry	3030
7.	Bjerrum & Lister perimetry	986
8.	Ultra sonography (SUG)	7968
9.	E.C.G.	2703
10.	Low vision aid	262
11.	E.R.G.	2695
12.	E.O.G.	384
13.	V.E.R.	901
14.	Fluroscein angiography	6182
15.	Dark adaptometry	187
16.	Yag laser	763
17.	Argon laser	4655

Community Services

Statistical data of work done by the mobile ophthalmic unit in the comprehensive eye care camps and community.

I.	Major eye camps organised	=	20
	Mini eye camps organised	=	5
	Eye OPD held	-	12 PHC's

II. Operations

Cataract	=	2215.
Glaucoma	=	34
Others	=	203

III. Out patient treated

OPD patient examined	=	22502
Refraction done & glasses prescribed	=	7233

IV Survey

No. of schools surveyed	=	14
No. of students examined	=	5744
No. of Vill. surveyed	=	1
No. of person examined	=	608

V Health education

(a) Lecture/talks given	=	43
Average No. of persons attended.	=	10015
(b) Film exhibited on eye care	=	16

VI Rehabilitation programme

Blind persons rehabilitated	=	98
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Collaborative publications

Books

Dada, V.K.: Advanced Contact Lens: Sagar
publication, 78 Ved mansion Janpath, New Delhi, 1988.

REHABILITATION & ARTIFICIAL LIMBS

FACULTY

Professor and Head.

Dr. S.K.Varma

Associate Professor

Dr. U. Singh.

Dr. U. Singh was promoted as Associate Professor from 30.4.1988.

EDUCATION

Continuing Medical Education

Dr. S.K. Varma, organised and moderated the panel discussion on "Role of family physician in rehabilitation and after care" in 6th I.M.A.C.G.P. national conference on General Practice held at New Delhi, August, 1988 in which Dr. S. Wadhwa spoke on 'Cardiac rehabilitation and role of general practitioner.

Dr. S.K.Varma chaired a plenary session in national seminar on essential drugs in primary health care in India, held at National Institute of Public Cooperation and Child Development, Sept., 1988 at New Delhi; was the general chairman of the technical session in a national seminar on "Physical aspects of post-polio rehabilitation", held at Trivandrum, Nov., 1988; spoke on "Recent advances in treatment of cerebral palsy", in national seminar on "Reducing incidence of cerebral palsy in children" held at National Institute of Public Cooperation and child Development, New Delhi, Jan., 1989. participated and chaired a session in second annual seminar on "Mental retardation" held at National Institute for the Mentally Handicapped in Secunderabad Feb., 1989; in regional workshop on the role of NGO's in reaching the disabled child organised by UNICEF and

Directorate of Welfare, Delhi and presented "Issues in services and potential of NGOs involvement to reach the physically disabled child - An over view", held in New Delhi, Feb. 1989; gave a lecture on "Organisation of rehabilitation services" in the 43rd course on Hospital Administration organised by National Institute of Health and Family Welfare, Jan., 1989; and was moderator in the CME programme on "Spinal orthoses, organised by the 17th annual conference of IAPMR, held at NIRTAR, Cuttack, Jan., 1988 gave a guest lecture on Role of rehabilitation in the management of some common conditions at the All India Diamond Jubilee Medical Conference - Indian Medical Association, held at Patna Dec., 1988.

Dr. S. Wadhwa: spoke on "Emerging concepts and challenges of leprosy rehabilitation" in the national seminar on "Rehabilitation of Leprosy Patients - A team approach" October, 1988, held at I. P. H., New Delhi and in a national seminar on "Childhood disabilities" on "Early detection and prevention of childhood disabilities - the challenges before us", held at NILPCCD, New Delhi March, 1989.

Physiotherapy students and interns from I.P.H., New Delhi, are being given training in physiotherapy throughout the year.

Demonstration programmes were conducted for the prosthetic orthotic students from various training centres from Madras, Bombay and Delhi.

RESEARCH

Research Continuing

"Health education for prevention of physical disability" (ICMR)

Phase II

The second phase of the study to develop health education material on prevention of childhood injuries has been started.

The material mainly emphasises on childhood injuries. Two measures of communication are being used for the study. One is purely visuals i.e. posters depicting injuries at different settings and second is audio-visual i.e. a slide series on prevention of childhood injuries. The posters have been developed and pretested while the set of slide series along with synchronised commentary is in its final stage of completion.

"Squatting A.K. prosthesis"

The project is being run to improve the design of existing squatting A.K. prosthesis. The work is continuing to improve the design of the socket using various plastics to achieve transparency and flexibility. Above-knee flexible trial contact socket with non-transparent material has been developed.

New Research

"Design and development of multi-axial hip joint in above knee calipers".

AWARDS AND EVENTS

Distinctions, Awards, Honour

National award for the services to the handicapped, by Handicapped Welfare Federation of India, for 1988 was conferred on Dr. S.K. Varma.

Shri R.T. Aggarwal got the National Award as one of the efficient workers in the category of Orthopaedically handicapped for the year 1988-89.

Significant Events

Dr. S.K. Varma was nominated member of National Council for Handicapped Welfare and of the Selection Committee for finalising National Awards for 1989, Ministry of Welfare; member of a committee by University Grants Commission for grant of University

status for National Institute of Orthopaedically Handicapped (NIOH) Bon-Hooghly, Calcutta; appointed chairman technical advisory group of the Orthopaedically Handicapped of the S & T project in Mission Mode "Application of technology for the welfare and rehabilitation of the handicapped" - 1988; member of working group on handicapped set up by Planning Commission for 8th five year plan; member of the General Council and Academic Committee of National Institute of Rehabilitation Training and Research, PO Bairoi, Distt. Cuttack and the National Institute for the Orthopaedically Handicapped, Calcutta; member of the General Council and Standing Committee of the Institute for Physically Handicapped, New Delhi.

Shri R.T. Agarwal won the second prize in the National Rally of Auto-Tricycles, held at New Delhi.

HOSPITAL SERVICES

Clinics:

1. Disability evaluation clinic
2. Brace clinic
3. Rehabilitation clinic
4. Appliance check-out clinic
5. Follow-up clinic

No. of new cases :

- Out patients	7,932
- Prosth. & orth. workshop	1,764
Total	9,696

No. of old cases: 45,838

Community Services & Education

A camp was organised at Vrindavan for rehabilitation of rural disabled.

Mrs. A. Gulati gave lectures on "Problems of rehabilitation of handicapped" at CIRTES Pusa, New Delhi, for employment officers, May, 1988 and "Problems of mentally ill and retarded offenders and their rehabilitation" during Behaviour Modification Programme organised at I.C.F.S. Jhande Wallan, New Delhi, October, 1988 and February, 1989.

PUBLICATIONS

Papers published:

Singh, U. and Wason, S.S. Multi axial orthotic hip joint for squatting and cross-legged sitting with HKAFO Prosth. & Orth. International, 1988, 12, 101-102.

Wadhwa, S. : "The challenge of cardiac rehabilitation - An introduction", Indian Journal of Disability and Rehabilitation, 1988; 2, 107-112.

Singh, U. and Varma, S.K.: "Rehabilitative management of upper limb amputees". Indian Journal of Medical Research, 1988; 88:99-106.

Papers presented at scientific meetings	6
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Papers accepted for publications	2
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Chapter 6.38

SURGERY

FACULTY

Professor and Head	I.K.Dhawan
Professors	B.M.L.Kapoor M.M.Kapur L.K.Sharma
Additional Professors	S.Nundy S.N.Mehta M.C.Misra
Associate Professors	T.K.Chattopadhyay R.K.Khazanchi
Assistant Professors	N.K.Shukla A.K.Kriplani V.K.Kapoor Arvind Kumar R.K.Saxena

Prof. I.K.Dhawan proceeded on extraordinary leave from 10th April, 1988 for one year for employment in Abu Dhabi. Prof. B.M.L. Kapoor took over as Head of the department.

Prof. B.M.L.Kapur took over as Chief, Institute Rotary Cancer Hospital from 1st. August 1988.

Prof. M.M.Kapur has taken premature retirement from the Intitute from 15th June 1988.

Dr.M.C.Misra joined as Additional Professor of Surgery on 8.10.1988.and proceeded on Commonwealth Fellowship for one year on 9.10.1988.

Dr. V.K.Kapoor has resigned from 4.1.1989 to join as Asstt.Prof.of Surgery at Sanjay Gandhi Postgraduate Institute of Medical Sciences, Lucknow.

Dr.Arvind Kumar and Dr. R.K.Saxena joined as Assistant Professors from 20th August 1988 and 8th March,1989 respectively.

Dr.N.K.Shukla left the department on 28th April, 1988 to join IRCH as Additional Professor of Surgical Oncology.

EDUCATION

Undergraduate : There has been a change in evaluation of undergraduate students posted in surgical wards. More importance is being given to their day- to-day working in the wards - 50 % of the assessment is earmarked for day-to-day working and 50 % for end posting assessment.

Continuing Medical Education

Prof. B.M.L.Kapur organised a CME programme for the Association of Surgeons of India at the AIIMS, December 1988; and an Instructional course of lectures at the conference of Association of Surgeons of India held in Delhi, December 1988.

Prof.B.M.L.Kapur, Prof. L.K.Sharma, Dr. T.K.Chattopadhyay were invited to deliver lectures in UPDATE SURGERY at Maulana Azad Medical College in October,1988 on 'Treatment of early carcinoma breast', 'Management of diabetic foot', and 'Recent concepts in the management of hyperparathyroidism 'respectively.

Prof.B.M.L.Kapur was invited to give lectures on " Carcinoma Rectum" in national seminar on progress in Surgery organised by K.G.Medical College, Lucknow 1988; 'Managment of periampullary carcinoma in the seminar organised by the Indian Academy of Gastroenterology in February 1989; participated in the consultative meeting on CME organised by the National Academy of Medical Sciences; gave a lecture on "Surgery

of the pancreas " at Madras March, 1989 during the CME programme organised by National Academy of Medical Sciences.

Dr. T.K.Chattopadhyay delivered a lecture on "Oesophageal replacement" in the Instructional Course conducted by the Association of Surgeons of India, December 1988 in Delhi.

Prof. L.K.Sharma organised a seminar on "Abdominal Tuberculosis " in July 1988 sponsored by Indian Medical Association; was a panelist on "Role of family physician in the management of acute abdomen " by Indian Medical Association, College of General Practitioners at their annual conference, August, 1988; participated in a symposium on "Breast cancer" held at Sir Gangaram Hospital under International College of Surgeons, May 1988; was a panelist to discuss Massive lower G.I. bleed at the annual conference of Colon and Rectal Surgeons of India at New Delhi, December, 1988.

Dr. S.N.Mehta was invited by Delhi Nephrology Society to speak on "Surgical aspects of renal transplant" at the "Update in Nephrology" held at AIIMS, December, 1988; chaired the session on "Renal transplantation" and was one of the panelists in the discussions on kidney transplant.

RESEARCH

Research Completed

Nutrition and surgery

200 cases undergoing major elective surgery were studied. Nutritional status of the patients was evaluated by biochemical, immunological and anthropometric parameters. 55 % of the patients were malnourished. Post-operative complications in malnourished patients was 38.2% in comparison to 15.6 % in well nourished group. Relative value of all nutritional parameters in predicting post-operative morbidity and mortality were evaluated. Step-wise

linear regression analysis showed that parameters with best correlation respectively were: i) Mid arm muscle circumference (MAMC). ii) Haemoglobin. iii) Body weight. iv) Serum albumin.

Ultero-constrictive lesion of the bowel :

412 cases of ulteroconstrictive lesions of the bowel were analysed and studied. 327 cases were of tuberculosis, 72 cases of non-specific inflammatory lesion and 13 were of Crohn's disease. Of these tuberculosis was more common in young females, whereas non-specific lesions were more common in males. 76.4 % patients of tuberculosis presented with chronic symptoms and 23.6 % patients had acute abdomen. Tubercular toxemia was very uncommon. Ileocecal region was the common site of involvement (112), followed by ileum alone (85 cases) and combined jejunum and ileum 22 cases. All 327 patients underwent surgery. 304 patients had resection and anastomosis. One patient presenting with perforation peritonitis (TB) died post operatively. All patients received anti-tubercular chemotherapy post operatively for minimum period of six months.

Comparison of early response to various chemotherapeutic therapeutic regimes for tubercular lymphadenitis

Hundred patients with tuberculous lymphadenitis were randomly allocated into one of the four groups with different regimes of chemotherapy viz. i) INH + Rifampicin for 9 months, ii) INH + Rifampicin + Ethambutol for 9 months, iii) INH + Rifampicin + Ethambutol + Pyrazinamide for 2 months followed by INH + Rifampicin for 4 months, iv) INH + Rifampicin + Streptomycin and Pyrazinamide for 2 months followed by INH and Rifampicin for 4 months. No significant difference in the response was observed. White cells count and LFT during follow up were not helpful.

Serum LDH and its Isoenzymes in oral cancer.

49 biopsy proven cases of squamous cell carcinoma of the oral cavity were studied. Their total serum LDH and its isoenzyme pattern were determined. The patients were subjected to either surgery, radiotherapy or chemotherapy or a combination of these modalities. 22 patients were followed up. They were compared with 24 normal controls.

The total serum LDH was significantly elevated in patients with oral cancer. There was no specific isoenzyme pattern. During follow up patients who ultimately had a recurrence showed an increase in the serum LDH. There was no specific isoenzyme pattern. Patients who remained tumour free showed a gradual decline in the total serum LDH.

Serum LDH may serve as a useful biochemical marker to predict a recurrence in patients with oral carcinoma. The value of determining the isoenzymes however needs further evaluation.

Preoperative liver function chemistries in the prediction of operative cholangiogram in patients undergoing elective cholecystectomies.

In this study of 78 patients undergoing elective cholecystectomies with no preoperative indication for CBD exploration, 4(5.1%) had stones seen on operative cholangiogram which were proved to be present on exploration of CBD. Serum alkaline phosphatase was significantly elevated in 3/4 patients with CBD stones and in only 10/74 other patients.

Utility of ultrasonography in the management of complications of renal transplantations

High resolution real time ultrasonography was performed in 58 of the 77 consecutive renal transplant recipients. Following conclusions were reached: i) ultrasound is useful in the detection and follow up of hydronephrosis and hydroureter in the transplanted kidney. However the finding of mild to moderate

hydronephrosis does not always indicate obstruction. ii) Ultrasound is a sensitive method of detecting peritransplant fluid collection. Collections which appear in the early post-transplant period usually disappear spontaneously on follow up, whereas collections which appear after the third month are usually associated with complications and need careful follow up and treatment. iii) Ultrasound is not sensitive in the detection of acute rejection. neither it is possible to differentiate acute and chronic rejection on ultrasound findings. iv) Ultrasound proved to be a useful adjunct in performing percutaneous procedures viz. aspiration of fluid collections, antegrade pyelography and percutaneous nephrostomy.

Emptying function of vagotomized intra-thoracic stomach: (Nuc. Med, Surg)

Calcium levels in human mammary tissues and correlation with oestrogen receptors and histological features. (Rep. Biol, Surg)

Anterior chemotherapy in locally advanced breast carcinoma. (IRCH, Surg)

Duodenogastric bile reflux (Nuc. Med. Surg)

Value of routing operative cholangiography during cholecystectomy. (Rad. Diag, Surg)

Research Continuing

Influence of intra-peritoneal drains after cholecystectomy.

This is a randomised trial comparing suction, corrugated drains and no drain after elective cholecystectomy admitting 50 patients in each group. Preliminary analysis shows that chest infection is more common with suction drains (9/39) while wound infection is more common when no drain is used (3/50). Undrained patients had maximum incidence of post-operative asymptomatic fluid collection in the gall bladder fossa

(22/50) Post-operative chest infection is more common in the drained group (13/89) as compared to undrained group (5/50).

Value of laparoscopy in the assessment of resectability of gastric carcinoma.

Patients with non-obstructing gastric carcinoma are being evaluated by laparoscopy for local extent, lymph node involvement and distant metastasis. Most of the endoscopies are done on an outdoor basis. Laparoscopy is very accurate in detecting distant metastasis, large nodal masses and biopsies can be taken. Fixity to adjacent organs and feasibility of bypass surgery can also be predicted. No complications were seen in 50 cases already done.

Role of enteral hyperalimentation on the nutritional status of patients of carcinoma oesophagus.

Nutritional status of 24 patients of carcinoma oesophagus was assessed on admission and after 10 days of enteral hyperalimentation by 3000-3500 cal. with 100-120 gms protein special liquid diet. Results have shown statistically significant improvement in nutritional status after enteral hyperalimentation as assessed by improvement in i) anthropometric parameters (weight gain, triceps skin fold, mid arm circumference and mid arm muscle circumference), ii) Biochemical parameters (rise in serum albumin). There was no significant change in levels of haemoglobin.

Comparative assessment of different out-patient treatment of internal haemorrhoids.

Preliminary results show that Grade-I haemorrhoids are best managed by sclerotherapy or cryotherapy. Band ligation, if possible, gives equally good results. Grade-II haemorrhoids respond equally well to cryotherapy and band ligation. Sclerotherapy is good for early Grade-II cases. Grade-III cases respond well to band ligation if possible. Cryotherapy gives good results in advanced cases.

Study of imli and banana trunk in decreasing the lithogenicity of bile in hamsters.

The initial study done in 20 hamsters has shown that there is 100% formation of cholesterol macrocrystals in hamsters fed on lithogenic diet while none of the hamsters fed on lithogenic diet and Imli developed cholesterol macrocrystals.

Fistula-in-ano treated with wiring

The continuing work confirms the excellent results of wiring in patients with fistula-in-ano as an outpatient procedure. The follow up of 2 years shows recurrence rate of 3%.

Cell mediated immunity in surgical obstructive jaundice

Infection is common in surgery for obstructive jaundice. The aim is to evaluate the cell mediated immunity status by skin testing in surgical obstructive jaundice and to see whether it can predict frequency and severity of infection in the postoperative period. Multi test CMI kit having 7 antigens (Diphtheria, Tetanus, Strepto-dornase, Proteus, Tuberculin, Candida, Trichophyton) is being used to determine the cellular jaundice and in control group. The response is being correlated with postoperative infection.

Economy and efficiency in surgery

This study aims to test the feasibility and advantages of short stay in major surgery. Following routine major surgery patients are discharged early (within 1-4 days) and followed up in the out-patients department. The introduction of a new concept is envisaged: that even after major surgery, stay in the hospital is not necessary - it is safe for the patient to go home and recover at home. As the study nears completion, 450 patients have been studied; there has been a re-admission rate of about 1%, with no complications in any patient resulting from early discharge. 97% patients have expressed satisfaction

with this system. Apart from cancer patients who have to come repeatedly for chemotherapy, one or two hospital visits has sufficed for most patients. This system not only saves the hospital expenditure on each patient, it also facilitates increased turnover in the limited number of beds.

Early-perioperative chemotherapy in breast cancer patients

A total of 122 patients were operated for carcinoma of the breast during the period March 1987 to December, 1988. 65 patients had ipsilateral axillary node positive disease and were started on a perioperative adjuvant chemotherapy for 6 cycles. The median duration of follow up was 15.26 months. Local recurrence was seen in 8 patients (14%). Distant disease developed in 11 patients (19%). 4 patients had both local and distant disease (7%). Much higher rate of post operative complications were seen in this study. Major wound disruption occurred in 8 patients (14%). Minor wound problems which included marginal necrosis, wound infection and seroma formation occurred in 38.6% of patients. Peri-operative adjuvant chemotherapy in node positive patients seems to be beneficial in reducing the incidence of local relapse, but it is associated with an unacceptable wound complication rate and prolonged post operative convalescence.

Comparison of rubber band ligation and infra-red photocoagulation for the outpatient treatment of first and second degree internal haemorrhoids- a randomised prospective clinical trial.

A randomised prospective clinical trial is being conducted to evaluate the effectiveness and suitability of infra-red photocoagulation, a new non-operative outpatient procedure for treating symptomatic first and second degree internal haemorrhoids in comparison with rubber band ligation. Patients presenting to the surgical OPD are randomly divided into two equal groups of 50 each. Following a pre-treatment work up comprising history and examination per rectally and

proctoscopically, they are treated by either of the methods. Follow up includes retreatment, if required, and evaluation subjectively and objectively includes repeated examinations at one, three and twelve months of treatment.

Utility of intra venous digital subtraction angiography (IVDSA) in the diagnosis of renal artery stenosis (RAS) in post transplant hypertensive recipients

Fifteen IVDSA studies were done on moderate to severe hypertensive recipients attending the renal transplant follow up clinic. All patients had a post-operative follow up period of one to four years. None of them were in acute or chronic rejection. All studies were done on outpatient basis. Significant renal artery stenosis, defined as 50% narrowing of arterial lumen has been detected in only one patient. There were no significant procedural complications or morbidity and no adverse effect of contrast material was found on the renal function. In spite of recipients being immunocompromised, there was no post-procedural septic complications.

A comparative study of the rate of urological complications of the conventional intravesical and the recent extra-vesical techniques of ureteroneocystostomy in renal transplantation.

To compare the rate of complications, twenty consecutive renal transplant patients from each of the two groups were evaluated using ultrasonography, Tc99m DTPA renal dynamic study, direct radionuclide cystography (DRCG) and urine cultures. Preliminary data indicates that incidence of complications is higher with the extra-vesical technique (Barry and Hatch) of ureteroneocystostomy.

Relation between intragastric bile acid concentration and mucosal abnormality of thoracic stomach.

Histories of clinical behaviour of nine patients have been noted, fasting gastric twice samples have been frozen, endoscopic diagnosis and biopsy for

histological examination were taken. Four patients had pyloroplasty or pyloric dilation done during the course of esophagectomy and gastric pull up. Five patients did not have pyloroplasty.

Serial section examination of total oesophagectomy (Path, Surg)

Anterior chemotherapy in squamous cell carcinoma of the oesophagus (IRCH, Surg)

Immunological effects of blood transfusion in patients of carcinoma breast undergoing surgery (Biotech, Surg)

Psychological reactions in patients with breast cancer (Psychiat, Surg)

Endoscopic sphincterotomy (ES) for the management of common bile duct calculi (GE, Surg)

Bacteriology of human biliary tract and its correlation with intestinal microflora (GE, Microbiol, Surg)

Screening of squamous cell carcinoma of oral cavity for human papillomavirus. (Microbiol, Surg)

Pancreatic islet transplantation: Utility of ductular obstruction and exocrine atrophy model (Endocrin, Microbiol, Path, Physiol, Surg)

Screening of squamous cell carcinoma of the skin, oesophagus and anal canal for human papilloma virus. (Microbiol, Surg.)

New Research

1. Urinary estradiol levels in benign breast disease.
2. Ultrastructure studies of small vessels in peripheral vascular disease (Buerger's disease) and diabetes mellitus.

3. Urinary estradiol levels in carcinoma breast.
4. Centhroman : Phase III study for breast cancer treatment (A multicentre clinical trial)
5. Relative value of ultrasound, computerised tomography and laparoscopy in the pre-operative evaluation of abdominal malignancies.
6. Incision and drainage versus incision, currettage and primary closure for superficial abscess.

AWARDS AND EVENTS

Distinctions, Awards, Honours.

Prof. L.K. Sharma delivered Dr. Atm Prakash oration at the Vth annual conference of the National Medicos Organisation held at Bhagalpur, Bihar. He was nominated as Vice-President of National Medicos Organisation.

Significant Events

Prof. B.M.L.Kapur was elected as the president of the Indian Association of Surgical Oncology for the year 1989; Founder president of Indian Association of Surgical Gastroenterology; Council member of Association of Surgeons of India for the year 1989-91; Member of the International Gastro-surgical Club, and President of Indian Ostomy Society; was invited to chair a session in the 10th World Congress of Collegium Internationale Chirurgiae Digestivae, held in Copenhagen, Denmark; was the conference director for the Golden Jubilee Conference of the Association of Surgeons of India held at New Delhi, in December, 1988; was nominated as the chairman of the Constitutional Committee and member of the Medical Education and Building Committees of the Association of Surgeons of India; has been appointed as Chief, Institute Rotary Cancer Hospital, AIIMS.

Prof. L.K. Sharma has been appointed as an Officer-in-Charge Emergency Services (Casualty), AIIMS.

HOSPITAL SERVICES

Clinics :

Surgical outpatients	6 per week
Follow up	4 per week
Surgical oncology in I.R.C.H.	6 per week
Diseases of the breast	1 per week
Cancer board	1 per week
Plastic surgery	1 per week
Transplant clinic	1 per week
Breast cancer	1 per week
G.I.cancer	1 per week

The Department has been doing all major operations like renal transplant, reno-vascular surgery for hypertension, lieno-renal shunts, major oesophageal, pancreatic, hepatic and colonic resections, ileo-anal anastomosis, myocutaneous flaps, free vascular flap and biliary strictures.

Reimplantation of accidentally amputated limbs has been done successfully.

Community Services & Education

All India Radio: Prof. B.M.L.Kapur "Gurde Ka Cancer", "Muhn Ka Cancer". Prof. L.K.Sharma "Aant Ka Cancer "Pet Mein Ulcer Ki Beemari"

Doordarshan kendra Prof.B.M.L.Kapur "Advances in Surgery in India" (Hindi) "Progress in Surgery -in India" (English) Prof.L.K.Sharma"Breast Cancer".

Prof. L.K.Sharma was invited to deliver a lecture on Careers in medicine and allied fields by Educational Psychology, Counselling and Guidance. National Council of Educational Research and Training.New Delhi.

PUBLICATIONS

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2. Chattopadhyay,T.K.,Kapoor,V.K.,and Gupta,S. The management of extensive corrosive oesophageal stricture do not dilate and procrastinate. Jap.J.Surg. 1989; 19:41-47.
3. Kapoor V.K., Chattopadhyay, T.K.,Sharma, L.K. Radiology of abdominal tuberculosis. Australas. Radiol. 1988; 32:365-367.
4. Kapoor V.K., Singhal,H., Gupta,S., Chattopadhyay,T.K. and Shara,L.K. Perforated duodenal ulcer - Simple is safe. Ind.J. Surg.,1988:50: 424-427.
5. Kapoor V.K.,Kumar,S.,Chattopadhyay, T.K., and Sharma,L.K. Dermatofibrosarcoma protuberance of scalp. Ind.J.Dermat.Venerol.& Lep.1988:53: 172-173.
6. Kapoor V.K.Tuberculosis lymphadenitis.Indian Medical Journal.1988;82 : 287-88.
7. Kapoor V.K.Endoscopic sphincterotomy without cholecystectomy for cholelithiasis (selected summary). National Medical Journal of India 1988; 1: 140-141.

8. Kapur B.M.L. Diagnostic approach to Surgical Obstructive Jaundice. Ann. Natl.Acad.Med.Sci. 1988;25:29-34.
9. Khazanchi R.K.Free flaps in Surgery.The National Medical Journal.1989; 2: 1-2 (Ed).
10. Mathur S.N., Kriplani A, Arora N., Jain S. and Vanjani R.N. Recurrent congenital haemangiopericytoma at an unusual site.Journal of Indian Med.Assoc. 1988; 86: 67-70.
11. Mathur S.N.,Jain S.,Kriplani A.K.,Kauishuar A.,Arora,N. Cystic hygroma. An 8 year survey. Indian Journal of Surgery,1988;50:115-188.
12. Misra M.C.,Kapur B.M.L.A new non-operative approach to fistula in ano. Br.J.Surg. 1988; 75 : 1093-1094.
13. Misra M.C.,Sharma S, Kapur B.M.L. Drainage after elective Cholecystectomy : A prospective study. Ind.Journal of Gastroenterology. 1989; 8 :91-92.
14. Verma A.K. Pancreas versus pancreatic islet transplantation- A review. Diabetes Bulletin. 1989; 8: 38-52.

Collaborative publications

9

Chapters in Books

Kapur B.M.L and Misra,M.C. "Carcinoma Colon and Rectum" in 'Recent Advances in Surgery' Gupta, RL.published by Jaypee Brothers,New Delhi. 1988.

Kapur B.M.L. and Misra M.C. "Fistula in Ano" in Current trends in Surgery' ed Pal.JC by Jaypee Brothers , New Delhi. 1988.

Sharma L K. and Sikora S.S. "Intestinal Fistulae"

in 'Recent Advances in Surgery' Ed Gupta RL, Jaypee Brothers ,New Delhi,1988.

Mehta, S.N. "Current status of renal transplantation" in the proceedings of East Zone Continuing Medical Education in Urology, Banaras Hindu University, 1988.

Mehta, S.N. "Renal Transplantation" in Scientific Approach to Surgery Vol.2 Ed Rana BS and Anand VJ Mahalakshmi Medical Pub. New Delhi, 1989.

Papers presented at scientific meetings	30
Papers accepted for publication	15

Chapter 6.39

UROLOGY

FACULTY

Professor and Head	S.M.Singh
Additional Professor	S.N.Wadhwa
Associate Professor	N.P.Gupta
Assistant Professor	P.N.Dogra

Prof. S.M.Singh retired on 31.5.88. Dr. Wadhwa was promoted as Professor and took charge as Head of the department.

EDUCATION

Continuing Medical Education

Professor S.N.Wadhwa gave guest lectures on "Etiopathology and diagnosis of stricture urethra" during the Surgery Update 1988 organised by the Department of Surgery, MAMC, New Delhi on 10.9.88; "Current concepts and the management of carcinoma of prostate" during the North Zone Urological CME as well as Workshop on "Ureteroendoscopy held at PGI, Chandigarh January, 1989; "Planning, establishment and maintenance of Urology service" during the national workshop on Hospital Administration Update at AIIMS, February 1989; was a panelist in "Male Pseudohermaphroditism" during the international workshop on Recent advances in neonatal surgery and intersex disorders held at AIIMS, March 1989; gave a talk on PCNL in the symposium on "Modern modalities in the management of urinary stones"; presented papers on "Ureteroscopic retrieval of urinary calculi" and "Recurrence of tumour in ileal conduit after radical

cystectomy" in the annual USI conference at Patna, October, 1988; chaired a scientific session during the conference; Convenor of the symposium on "Non-operative treatment of renal and ureteric calculi" in which he spoke on "Ureteroscopic retrieval of ureteral calculi" and "Status of chemolysis" during the annual conference of Delhi Chapter of Association of Surgeons of India October 1988; presented a paper on "Biomaterials in Urological practice" in the 1st national conference of Biomechanics held at IIT Delhi December 1988; presented 5 papers on a variety of urological problems in the Golden Jubilee Conference of Association of Surgeons of India, held in New Delhi December 1988; and chaired a scientific session in ASICON-88 CME programme held at AIIMS in December, 1988; organised the "international symposium on Adult and pediatric genito-urinary reconstructive surgery" at AIIMS, February 1989 in which he spoke on "Spectrum of vesico-vaginal fistula in Indian women"; was the chairman and a panelist during discussion on "Urethral injuries and their sequelae".

Dr.N.P.Gupta delivered lectures on "Urological problems in elderly" during the annual conference of Geriatric Society of India held at Shimla April 1988; "Management of PUJ obstruction" during the Surgery Update 1988 at MAMC, New Delhi, in which he also chaired a session; During the symposium on Non-operative treatment of renal and ureteral calculi, talk on "Percutaneous removal of renal calculi"; "Planning of OT complex" during ISHA conference at Delhi; "Presentation and evaluation of urethral trauma". in the international symposium on "Adult & pediatric genito-urinary reconstructive surgery" held at AIIMS; was the Co-Chairman of a session in the ASICON-88

Dr.P.N.Dogra was treasurer and participant in the international symposium on Adult & pediatric genito-urinary reconstructive surgery.

RESEARCH

Research Continuing

Multicentric clinical trial of indigenous drugs for Urolithiasis:

The project is running in its fourth year of study. The results will be compiled by the ICMR Statistical & Monitoring Unit.

Percutaneous renal surgery for removal of renal calculi (PCNL) - Appraisal of a new modality:

In 25 patients so treated as a primary modality stone retrieval rate was over 80 per cent. In the event of failure, open operation was performed. In patients with pre-existing nephrostomy tube, stone retrieval was easier. The hospital stay after PCNL has been 4-7 days, half of the period after open operation. In properly selected cases it is a time-cost-effective procedure with minimal morbidity.

Ureteroendoscopic (URS) retrieval of ureteric calculi - An evaluation of a new modality

In 100 patients of ureteric calculi so treated, URS has yielded encouraging results. The procedure is undertaken under spinal anaesthesia in the majority. In 80 per cent, it was done as an outpatient procedure saving a lot of inpatient time and space. Complete removal was achieved in 70 per cent and partial removal in 10 per cent in most of whom the calculi passed subsequently. The remaining 20 per cent patients with larger and impacted stones needed open surgery. Only 3 patients had significant complications like haematuria or infection which were easily managed. URS in our experience, is suitable for stones less than 8 mm in size and lodged in lower half of the ureter.

Intraoperative nephroscopy - An aid to complete stone clearance in open surgery for staghorn and multiple renal calculi

The procedure has yielded good results (around 90 per cent cleared of stones) in 30 cases in whom it was performed. It has limitations in far and outlying inaccessible calyces, particularly with narrow infundibula. The yield can be further improved with acquiring and using a flexible nephroscope.

Evaluation of tubeless pyeloplasty in pelvi-ureteric junction (PUJ) obstruction:

The procedure has been performed in 35 patients without significant complications except postoperative urinary leak which occurred for 5-7 days in 14% patients but could always be managed conservatively. The number of days of postoperative hospital stay averaging 12 days is significantly less than 15-21 days after splinted anastomosis with a nephrostomy.

Transvesical approach to large or earlier failed vesicovaginal fistula (VVF) repair

The procedure has been performed in 15 patients. Bladder flap repair and omental interposition and reimplantation of ureters have been performed where indicated. All except 4 patients (27%) have had good results of reconstructions. Four patients continued to leak but 2/4 have a smaller VVF communication following operation. One of the patients had a very large infected vesical calculus and all had very large defects with severe fibrosis reaching the pelvic wall. Further attempt at combined transvesical and vaginal approach is planned.

Evaluation of endoscopic management of complex urethral strictures

In 18 patients with complex urethral strictures (long, multiple or with false passages) staged internal

urethrotomy has been carried out. Diathermic cutting was employed in 6 in whom bleeding was anticipated or occurred. 12 patients (66%) had good results although needed calibration and dilatation at 4-8 weeks initially. In six patients either a satisfactory urethral channel could not be established or urethral constriction occurred rather quickly after the procedure. Two of these are on suprapubic cystostomy drainage and four have been subjected to urethroplasty.

Transurethral resection (TUR) of the large prostate gland - Evaluation of completeness of resection

In 15 patients with large prostates (glands with weight of more than 60 gms) in whom TUR was performed evaluation of completeness of resection was done by post-operative cystogram/MCU and correlating with clinical evaluation in all and ultrasound assessment in selected cases. It was correlated with resected weight of the gland. There was no instance of significant residual prostatic tissue. No patient had significant residual urine. None needed a reoperation. No one has persistence of urinary tract infection or other significant complications. TUR is thus a safe procedure even in larger (i.e. over 60 gms) prostatic enlargement.

Simple urodynamic study in evaluation of bladder outflow dysfunction and assessment of effects of drugs in non-neurogenic systolic bladder, as well as, low pressure bladders accompanying benign prostatic hypertrophy

8 patients of systolic bladder with increased intravesical pressure and generally with smaller bladder capacity and 7 patients with poor voiding post-TUR but without any residual prostate or evidence of outflow tract obstruction were evaluated by conventional CMG. The effects of bladder relaxants in systolic bladder group and urocholine in the low pressure group were studied. In a few the result was correlated with CMG and uroflometry done on urodynamic equipment elsewhere. Procedure of conventional CMG is satisfactory but needs extra caution in training and

performing it. It has certain limitations. Test performed on urodynamic equipment gives additional precise information.

Long term study of renal cell carcinoma (RCC):

Presently, 65 patients of RCC treated between (1982-88) have been reviewed and analysed regarding presentation, accuracy of diagnostic aids, value of preoperative embolisation and results of treatment. The tumour commonly occurs in 41-70 year age group, being 4 times more common in males. A palpable lump, haematuria and pain were the commonest modes of presentation. Ultrasound and CT scan were almost equally sensitive in staging the disease. CT may, however, detect the disease earlier. Pre-operative embolisation done in 29 patients was effective in reducing blood loss during surgery. Of the 35 stage I & II patients, 75% (26 patients) whose follow-up is available are alive - for over 3 years. In contrast of the 19 patients in stage IV only 2 are known to be alive at one year. Hormones, chemotherapy and permanent angioinfarction offer palliation in a small percentage.

Experience in management of patients with genito-urinary tuberculosis

60 cases of GUTB treated with currently advocated shorter course chemotherapy with 3 drugs (INH, Rifampycin and Pyrazinamide) have been evaluated regarding their response to chemotherapy, indications and results of surgical procedures.

Majority of patients were between 21-40 years with female preponderance. 24 patients had palpable renal lumps and 5 had epididymal involvement. Urine AFB was positive in 19 patients. Renal function was impaired in 20 patients (33%). Significant number of patients needed surgical treatment: nephrectomy in 8, partial nephrectomy in 1, augmentation caseocystoplasty in 8, ileal replacement in 2, pyeloplasty in 2, psoas hitch in 2, Boariflap in 1 and urethroplasty in 1. Endoscopic dilatation or resection was done in 11

patients. 20 patients were cured, 38 improved and 2 patients died of progressive disease and CRF.

Rational treatment of carcinoma prostate - Prospective study and follow-up

Records of 113 patients treated during the last 5 years have been analysed. Accurate staging was available in 95 patients; 7 were stage A, 12 in stage B, 21 in stage C and 55 (58%) in stage D at presentation. 43 patients received Honvan, 26 received other oestrogens. Bilateral orchiectomy was done in 45 patients. Eight patients were given flutamide. Radiotherapy was given to 27 patients, radical in 14 and palliative in 13. 15 patients received chemotherapy. Follow-up is not complete as yet. 3 are known to be dead.

New Research

1. Evaluation of neoadjuvent chemotherapy, cystectomy and radiotherapy in management of infiltrative bladder tumours.
2. Evaluation of BCG immunotherapy in management of superficial bladder tumours.
3. Evaluation of double 'J' stent in pyeloplasty.
4. Two doses of cephotaxime as prophylactic antibiotic in TURP.
5. Efficacy of norfloxacin in resistant pseudomonas urinary tract infection.
6. CT scanning in evaluation of carcinoma of urinary bladder.

Significant Events

Prof.S.N.Wadhwa continues to be the President of the Urolithiasis Society of India; was a member of the national organising committee of the first-ever

conference of Biomechanics held at IIT, New Delhi, December 1988; became a founder member of the Indian Society of Biomechanics; was a member of the organising committee and chairman of scientific exhibition committee of the Golden Jubilee conference of ASICON-88 New Delhi; convenor and organising secretary of the international symposium on Adult & pediatric genito-urinary reconstructive surgery, sponsored by the Urological Society of India, The Society of Genito-Urinary Reconstructive Surgeons, USA, and the Office of the Continuing Education Suny Health Science Centre, Syracuse, USA; nominated to be the organising secretary of the V national conference of Urolithiasis Society of India to be held in Delhi in November 1989; continues to be the Technical Expert on the panels of CSIR, ICMR, DGHS, National Board of Examinations, UPSC and Faculty Group working in the area of Biomechanics at IIT, New Delhi; invited to be the AIIMS based investigator of collaborative research project on Urolithiasis under ICMR and clinical investigator on a project on anti LHRH Vaccine under National Institute of Immunology, New Delhi.

Dr.N.P.Gupta was nominated as a coordinator for Indian Urologist Research Organisation Group (IUROG) study of carcinoma prostate; invited as a technical expert on the panel of CSIR; continues to be a member of editorial board of Indian Journal of Urology.; elected as Joint Secretary, Delhi State Chapter, ASI.

Dr.P.N.Dogra was appointed treasurer of the international symposium on Adult and pediatric genito-urinary reconstructive surgery; elected to be life member of Urological Society of India and full member of Association of Surgeons of India.

HOSPITAL SERVICES

Urology clinic:	3 per week
Urological malignancy clinic (IRCH)	1 per week

IRCH endoscopy & minor surgery:	1 per week
Outdoor urology minor operation theatre	6 days a week
Number of major operations:	640
Number of minor operations:	2370
Number of admissions:	688
Urology clinic: New cases	4532
New cases, UMC Clinic (IRCH):	208

The Lithostar Lithotripter (ESWL machine) was installed and the first patient was successfully treated on 28 March 1989.

Community Education

Prof. Wadhwa: talks on AIR in Hindi on i) Gurde ka pratyaropan and ii) Gurde mein pathri ki bemari.

PUBLICATIONS

1. Gupta NP: An indigenously designed nephrostomy catheter for use after percutaneous renal surgery. Ind.J.Urol.1988; 4: 87-88.
2. Gupta NP: Surgery of adrenal glands. The Medicine & Surgery, 1988; 28: 17-20.
3. Gupta NP, Khan M: Bilateral single system ureteral ectopia. The Medicine & Surgery, 1988; 28: 43-44.
4. Wadhwa SN, Khan M & Fazal AR: Appendico-vesical fistula presenting as urethral stricture. Brit. J.Urol., 1989; 63, 325.

Chapter in Book

Wadhwa SN & Shenoy SP: Biomaterials in Urological Practice. In Sahay K.B. & Saxena, R.K.(Eds) Biomechanics, Wiley Eastern Ltd., New Delhi (Publishers), p 11-17, 1989.

Papers accepted for publication	3
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Papers presented in scientific meetings	14
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Chapter 7.1

COLLABORATIVE RESEARCH (COMPLETED)

Immunological and immunogenetic studies on aortoarteritis in Indian population: (Anat, CTC, Path)

The results indicate the genetic susceptibility of the patients by showing increased frequency of HLA B5 and DR7 when compared to normals. As regards the cellular immunological responses, the patients showed increased levels of CD4 and significantly decreased levels of CD8 and altered CD4, CD8 ratio, suggesting suppression of host immune response. The humoral immune response showed increased levels of serum immunoglobulins in these patients.

Histocompatibility antigens in autoimmune thyroid disease: (Anat, Endocrin)

A total of 72 patients have been studied and included 63 with Grave's disease and 9 with Hashimoto's Thyroiditis. Apart from the HLA-ABC and DR/DQ antigens, full spectrum of autoantibodies has been done in 24 patients. The results indicate preferential segregation of HLA-DR3 (58%) in patients with Grave's disease. The association with DR3 was even stronger in patients with high titres of autoantibodies. Haplotype A26-B8-DR3 occurred in 19 patients suggesting a possible heterogeneity in the disease. It may be mentioned here that haplotype A26-B8 shows the highest linkage disequilibrium in the healthy Indian population.

Immunological and histopathological studies on Oral Sub-mucous Fibrosis (OSMF) and it's comparison with progressive systemic sclerosis (PSS) and Morphea. (Dent. Surg, Medicine, Path)

10 patients screened for serum auto-antibodies of the 2 cases had positive anti-nuclear antibodies (ANA).

Serum albumin/globulin ratio was found to be altered in 90% due to increase in globulin level. Mucosal biopsies of OSMF were compared with the skin biopsies of PSS cases and were found to have striking similarities: epithelial atrophy with increased collagen deposition, sometimes with hyalinization in the dermis was found. However, the work could not be continued due to financial constraints.

A Study of clinical and immunological correlates of lupus anticoagulant in systemic lupus erythematosus (SLF) (Haematol, Ped.)

Fifty patients of SLE were studied (40 female, 10 male). Kaolin clotting time (KCT) was measured in all cases, alongwith APTT, PPT, Russel viper venom time and mixing tests with normal plasma. 6 cases had prolonged KCT (more than 120 sec). However, in only four of these there was failure of correction of KCT with normal plasma, suggesting presence of lupus anticoagulant in them. The abnormal KCT was corrected by addition of inosithin, suggestive of anti-phospholipid nature of these anticoagulants.

Association of cerebro vascular ischemia with lupus anti-coagulants (Haematol, NSC)

Lupus anticoagulant has been found to be present in some patients with stroke and is implicated as a cause of stroke in young individuals without hypertension and diabetes. In the present study, 35 patients (26 males and 9 females) of stroke were studied for presence of lupus anticoagulant using routine coagulogram, kaolin clotting time and mixing tests. Their ages ranged between 21 to 45 years. None of these patients had presence of lupus anticoagulant.

Pathogenesis of thrombosis in replaced mitral valves. (CTC, Haematol)

A total of 54 patients with valvular disease were studied preoperatively (21), postoperatively without prosthesis (8), postoperatively with prosthesis (14), postoperatively with valvular thrombosis (6) and

postoperatively with non valvular thrombosis (5) in relation to platelet count, PT: APTT, TT, fibrinogen, ECLT, FDP, factor VIII: C and VIII R : Ag, AT III: C and AT III: Ag, plasminogen and anti-plamin levels. Of the 6 patients with valvular thrombosis, 3 showed hyperfibrinogenemia, 2 had increased levels of factor VIII R: Ag, all 6 had elevated AT III: Ag levels and 4 of the 6 had decreased levels of AT III: C indicating heightened tendency to thrombosis.

Comparative study of glomerulonephritis in adults & children (Neph, Path)

Minimal change disease is the commonest primary glomerular disease, its main distribution being in children.

Diffuse proliferative glomerulonephritis is on down going trend, where as crescentic glomerulonephritis has got a comparatively high incidence. FSGS has shown an increased incidence. IgA nephritis is the commonest cause of secondary glomerulonephritis. Tuberculosis still remains the most important etiopathogenetic factor in the evolution of secondary amyloidosis in our country. Hemolytic uremic syndrome forms an important group in renal failure in children.

Vestibular functions in conservatively treated chronic renal failure (Neph, Otorhino)

Chronic renal failure can produce malfunction of multiple organs, including auditory and vestibular functions. Only 33% of the patients had normal ENG data. Fifty eight percent of the patients had canal paresis and 8% showed hyperactive response. Ototoxic drugs like furamide may be most important factor in etiology of vestibular dysfunction in chronic renal failure.

Abnormalities of auditory function in patients of conservatively treated chronic renal failure: (Neph, Otorhino)

Auditory functions were evaluated in 25 patients of conservatively managed chronic renal failure of varying etiology. Eighty percent of patients had hearing loss, 74% having mixed or sensorineural loss while 6% had conductive loss. Sensorineural loss occurred predominantly at high tones. Hearing loss in patients of chronic renal failure was statistically significant when compared to controls. Ototoxic drugs(diuretics) may be one of the most important causes of hearing loss in CRF.

Use of affinity purified heterologus antibodies in an ELISA for the detection of Entamoeba histolytica in clinical specimens: (G.E. Microbiol.)

A simple and sensitive ELISA has been developed for the detection of Entamoeba histolytica antigen in human faeces using affinity purified heterologus antibody system. Stool samples were positive by ELISA in 117 of 121 (96.7%) patients with E.histolytica. In addition 52/152 (32.9%) of the subjects with no demonstrable parasite in a single stool examination and 39/141 (27.7%) subjects with infections other than E.histolytica were also positive. However, the test was negative in 16/17 (94%) subjects where no cysts or trophozoites of E.histolytica were seen by microscopy in repeated stool examination.

Effect of Giardia infection upon nutritional status of preschool children: (G.E., Microbiol)

34 children 24-72 months of age out of 185 examined (18.4%) were found to have giardiasis. Children without giardiasis were found to have better nutritional status according to standard criteria. The prevalence of giardiasis in severely malnourished children and their matched controls was normal. It is concluded that giardiasis leads to impairment of height and weight gain in children.

Epidemiology of intestinal parasitic infection in a suburban area of Delhi: (G.E., Microbiol)

52 children, 2-6 years of age, out of 125 examined were found to have parasitic infection in Nizamudin area of Delhi. Ascariasis was the commonest infection (23/52) followed by Trichuriasis (13/52) and Hymenolepis infection (10/52). Giardiasis was seen in 11/52 children. 13 out of 52 had multiple parasitic infections.

Bacteriological study of pyodermas with special emphasis on anaerobic bacteria. (Dermat.Microbiol)

Out of 100 pus samples cultured from pyodermal lesions, Staphylococcus aureus (45%) and beta haemolytic Streptococcus (BHS) (32%) were isolated commonly. Antimicrobial sensitivity of 71 Staph. aureus isolates showed 38.3% resistance to erythrocine. 85.7% BHS group A could be typed by T agglutination patterns. Three BHS strains belonged to group G and one to group D. Five pus specimens yielded obligate anaerobes mixed with aerobes. Bacteroides melaninogenicus/asaccharolyticus was isolated in 4 of the 5 samples positive for anaerobes. This is the first report in Indian literature on a study of anaerobes in pyoderma patients.

Role of Campylobacter jejuni in childhood diarrhea: (Ped., Microbiol)

Among 355 children less than 5 years with acute gastroenteritis and 85 controls of similar age distribution as patients, Campylobacter jejuni was isolated in 12 (3.4%) of the patients and 2 (2.4%) of the control subjects (P=NS). Three of the 10 isolates from patients were found to be positive for enterotoxin production by rat ileal loop test. None of the control strains produced any fluid. Serological response was noted in 2 of the 5 patients tested.

Etiological role of fungus causing skin infection in rural area: (Com. Med., Microbiol)

Study conducted in the village Chainsa under PHC Ballabgarh shows that dermatophytosis is not a major problem in primary school children in this area. The tinea corporis is a major clinical manifestation followed by tinea capitis and tinea pedis. Commonest agent isolated from this area is *T. violaceum*.

A Randomised controlled study of propranolol versus endoscopic sclerotherapy (EST) in poor risk cirrhotic patients. (Biostat, GE)

To compare the efficacy of EST and oral propranolol for prevention of upper gastrointestinal bleeding, 57 patients of cirrhosis of liver with child's B and C status were randomly assigned to either treatment after an endoscopically proven bleed from esophageal varices. Both treatment groups were comparable with respect to demographic, clinical and laboratory data. EST was given once in 10 days till obliteration of varices.

Propranolol was given twice daily at a dose that reduced the resting heart rate by 25%. The results showed that endoscopic sclerotherapy was superior (Statistically significant) to propranolol in reducing number of episodes of bleeding, units of blood transfusion required, number of hospitalization for bleeding and number of patients with frequent bleeds. There was a trend in favour of EST towards bleeding free period, patients without any episodes of bleeding and median survival. There was however, no statistical difference in the two treatment groups in the overall mortality, causes of death and complications.

Psychiatric assessment and determining extent of psychosocial disability in patients suffering from dementia (Psychiatry, NSC)

Thirty patients of dementia have been studied on their sociodemographic variables, global deterioration scale, brief cognitive rating scale, fast assessment

staging to determine their present psychiatric status and magnitude of deterioration. Stress caused by such patients on the family members and latter's coping mechanisms have also been studied by detailed interview in a descriptive style. The preliminary results show that dementia produces considerable cognitive and personality decline in a short period producing marked stress on in the family members.

Effects of internally administered radioisotopes on the developing brain of rat (Anat, Nuc. Med.)

Pups in the pre and post natal development period were exposed to varying doses of radiation from I-131 and P-32 administered intraperitonially. Morphological changes in the developing Purkinje cells and pyramidal cells were studied after different time intervals. It was shown that there was a threshold dose of radiation (about 6 rads) above which morphological changes were demonstrable in the developing neurons exposed to radiation. It was also shown that the changes were reversible; given time for recovery with the radiation doses upto 26 rads used in this study.

Role of radiolabelled HCG monoclonal antibody for tumor imaging (Nuc. Med.; Biochem)

HCG is produced by all choriocarcinomas. Our studies describe the radioimmunolocalization of these HCG producing/secreting choriocarcinomas grown in mice, by external scintigraphy after injection of monoclonal antibodies to HCG, radiolabelled with I-131. These monoclonal antibodies recognized the whole HCG molecule as well as the B-subunit, and had <10% cross-reaction with -subunit. The optimum time conditions for getting, the best results in terms of scan and biodistribution, have been standardized for the whole antibody as well as its F (ab') fragments. The scans were compared with 2 conventional method of Ga-67 citrate scanning. This method give more reliable results and better target/nontarget ratio. The results conclusively prove that detection and localisation of certain types

of tumors are possible by using HCG monoclonal antibody labelled with I-131.

Clinical and investigative profile of biopsy proven idiopathic myocarditis (CTC, Nuc. Med, Microbiol, Path)

Twenty cases of proven myocarditis underwent prospective study (within 2 weeks of biopsy) for resting LV function. 17 cases showed poor LV function. 14 cases had global wall motion abnormalities; 4 patients had regional wall motion abnormality, 2 had both regional and global wall motion abnormalities. Documentation of LV function helps toward the diagnosis of idiopathic myocarditis.

Quantitative grading of Ex RNV for patients with CAD using multivariate discriminant analysis (CTC, Nuc. Med.)

89 patients underwent exercise radionuclide ventriculography and coronary angiography within one week of each other. The study had shown that age, duration of exercise, LVEF and peak exercise regional wall motion abnormalities are the most significant variables in determining the underlying CAD. A scoring system is under development for prospective studies.

Auditory brainstem evoked responses (ABER) in normal neonates and infants (Pediat. and NSC)

ABER were recorded to provide normative data regarding the latency values, brainstem conduction times in term neonates and infants upto 24 months of age on a computerized audiometer. Twenty normal term neonates of varying gestational ages were studied during first five days of life. Seventeen infants were studied at 3 months \pm 7 days, 6 months \pm 14 days, 12 months \pm 14 days and 24 months \pm 7 days.

Role of auditory brainstem evoked responses in the management of neonatal hyperbilirubinemia (Pediat. and NSC)

ABER were recorded prospectively in 18 term neonates with neonatal hyperbilirubinemia (serum bilirubin > 15 mg/dl) and compared with 20 term control neonates. Four neonates, who had features of bilirubin encephalopathy served as an illustrative examples of the severity of permanent changes in the ABER, were also studied. Wave complex IV-V was absent in eight recordings in neonatal hyperbilirubinemia group and none in control group ($p < 0.001$). Significant prolongation of latency of wave I, V and interwave conduction times (wave I to V) occurred in jaundiced infants. The abnormalities in ABER reversed to normal in seven neonates after exchange blood transfusion. All neonates in study and control group had normal hearing and development quotient (DQ) on follow up.

Echocardiographic assessment of infants born to diabetic mothers (Pediat. and CTC)

Echocardiograms were performed in 31 neonates (Group I) born to diabetic and 37 control infants (Group II) matched for weight and gestational age. Interventricular septum (IVS) thickness was significantly more in Group I babies (4.77 ± 1.4 mm) as compared to infants in Group II (2.5 ± 0.7 mm) ($p < 0.001$). The IVS thickness of 5 mm was found in eight babies, which regressed in six who came for follow up over 3 months. There was no significant difference in the sizes of two groups regarding left ventricular internal dimension (LVID), right ventricular outflow tract (RVOT), Left atrium (LA) or aorta (AO). The left ventricular mass (LVM) was significantly more in infants born to diabetic mothers ($p < 0.001$). The left ventricular contractility as judged by percentage of shortening of internal dimension (%SID) and ejection fraction (% EF) was significantly more in Group 1 ($p < 0.01$). On pulse doppler echocardiography no evidence of left ventricular outflow obstruction was found in Group 1. This study substantiates the earlier studies

showing cardiac enlargement in infants born to diabetic mothers which is due to enlarged cardiac mass.

Prenatal diagnosis of genetic disease by amniocentesis (Pediat. and Ob. and Gyn.).

Prenatal diagnosis has been carried out in 113 cases who had amniocentesis. Forty three mothers had a previous child with a neural tube defect, 40 had a previous child with Down syndrome, 10 had offspring with mental retardation/multiple malformations, 6 had conceived at advanced maternal age, and 14 had miscellaneous indications for amniocentesis. The amniotic cells were cultured using ultroser, a serum substitute with cell growth and adhesion factors. This enhanced the success rate of amniotic cell culture considerably. The closed culture system proved to be the more suitable method for the existing laboratory conditions in India. Alfafetoprotein was also assayed in the amniotic fluid by an ELISA technique. Three abnormal karyotypes were detected, including one case with structural aberration. Three fetuses were diagnosed to have neural tube defects based on assay of AFP as well as ultrasound studies. Two of the fetuses in the multiple malformation group also had abnormalities. These studies have helped to evolve newer techniques of prenatal diagnosis.

Chromosomal studies in repeated abortions (Pediat. and Ob. & Gyn.)

Sixty one couples who had two or more spontaneous abortions were investigated for chromosomal abnormalities. Nine women (14.8%) were detected to have a chromosomal abnormality. Five women showed numerical aberrations and the rest showed structural aberrations. The data indicated that more the number of abortions, lesser the risk of having any chromosomal aberration.

Immunogenetic study of juvenile chronic arthritis (Pediater & Anat)

In systemic onset JCA, HLA-DR 4 was present in 60 % cases associated with persistent arthritis and

indicated a poorer prognosis with respect to arthritic sequelae. In pauciarticular disease no significant association was found with either HLA DR 5 or HLA DRW 8 in Indian children. In Seronegative Progressive Erosive Arthritis HLA DR 7, was present in 8 of 10 patients compared to its frequency of 26% in normal population. In the unclassifiable group HLA B 27 was present in 82.5% cases compared with 6% of normal controls. HLA CW2, HLA DR4 were also significantly increased. This group is thus associated with specific HLA antigens.

Clinical presentation of juvenile chronic arthritis (Pediatr and Med)

In a prospective study of 476 children using the diagnostic criteria of the American Rheumatism Association with some modifications such as age at onset <16 years showed besides systemic (21 %), Polyarticular (20%), Pauciarticular (16%) onset types two other modes of presentations i.e. the seronegative progressive erosive arthritis (11%) and unclassifiable seronegative spondarthropathy enthesiopathy (32%). In seronegative progressive erosive arthritis, the sex distribution was equal and peak age of onset was close to puberty in one third cases. The systemic features were unremarkable. The onset in most cases was pauciarticular but followed a polyarticular course on follow up. The pattern was predominantly symmetrical. The brunt of the disease was borne by the wrist. Unclassifiable group was divided into the arthropathic and enthesiopathic type. In the arthropathic subtype, peripheral arthropathy with or without enthesiopathy occurred at onset, while in the enthesiopathic type, no arthritis was seen initially. The commonest joints involved were of the lower extremity, the pattern of involvement being predominantly asymmetrical.

Plasma salicylate monitoring in juvenile chronic arthritis (Pediatr. and Pharmacol)

Plasma salicylate monitoring in JCA indicated that therapeutic plasma levels (15)25 mg/dl) were achieved by a mean aspirin dose of 81 mg/kg/day (range 80)110 mg/kg/day) administered in three divided doses. On

surface area basis, the mean dose of aspirin was 2.1 g/sq.m./day. Steady state in plasma was achieved by day 7. There was no evidence of hepatotoxicity in this dosage range.

Acute leukemia in children (Pediat and Hematol)

Three hundred and twenty six children accounting for 1% of peditric admissions in the last 14 years were studied. 72.3% of these had acute lymphocytic leukemia (ALL). Of these, CNS involvement was seen in 10.7%. Sixty per cent had one or more of bad prognostic features at diagnosis which is three times higher as compared to western studies. Twenty five per cent had L2 morphology.

Induction regimens in ALL (Pediat and Hematol)

Four induction regimens - prednisolone and 6)mercaptopurine (group I), prednisolone and vincristine (group II), prednisolone, vincristine and L-asparaginase (group III) and prednisolone, vincristine and adriamycin followed by cyclophosphamide and L-asparaginase (group IV) have been evaluated. Successful induction remission was achieved in 16 (69.6%) in group I, 23 (92.0%) in group II, 36 (94.7%) in group III, 31 (96.8%) in group IV. Relapses were seen in 10(62.5%), 10(73.8%), 25 (69.4%) and 9(29.0%) cases in the four groups respectively. Relapses in group IV were infrequent as compared to children of group I, II and III. Adverse risk factors were similar in all four groups. Ninety four children (61.3%) had one or more poor prognostic factors at diagnosis. Seven percent (3/43) children with out any poor prognostic factors died during induction therapy as compared to 19.1 percent (18/94) children having poor prognostic factors at the time of diagnosis. Higher mortality was seen under two years of age.

Burkitt's Lymphoma in India (Pediat and Hematol)

Burkitt's lymphoma is uncommon in India. Fifty two cases including 14 of ours have been seen. The age varied between 9 months to 70 years with mean of 10.3

years. Male to female ratio was 6.6:1. Male predominance was seen below 13 years (M:F ratio 13:1). Clinical presentation of Burkitt's lymphoma does not resemble either endemic or nonendemic areas. Facial bones were involved alone in 18 (30.6%), jaw was involved alone with abdominal lesion at presentation in 9, (17.3%) and primary abdominal involvement in 21 cases (40.4%). Burkitt's lymphoma in India presents with jaw and abdominal lesions in almost equal number. These presentations are different in endemic and nonendemic areas, and may represent third mode of clinical presentation. Six of fourteen children seen in AIIMS hospital were treated by cyclophosphamide, vincristine and methotrexate. Complete remission was achieved in 3 (50%) who were in continuous remission for a period varying between 10)48 (mean of 24.3) months.

Characterisation of entero aggregative escherichia coli (Pediat. and Microbiol)

We have previously shown for the first time that entero aggregative E. coli may be new enteric pathogen. Studies were carried out to characterise the isolates from cases of diarrhea in a rural community and determine the mode of action of this organism. The 37 entero aggregative strains tested were found not to belong to any recognized enteropathogenic O serogroup confirming that these organisms are different from traditional EPEC. These strains were all negative for enterotoxin when tested in rabbit ileal loop assays and with specific DNA probes that detect LT and ST. Studies in retard rabbit model showed hemorrhagic necrosis with two strains suggesting a possible role of cytotoxin. However, the results of vero cell assay so far failed to show any cytotoxicity.

Clinical hematological and immunological profile in childhood acute lymphoblastic leukemia (Pediat. and Hematol)

Seventy one patients of childhood ALL seen at A.I.I.M.S. during 1986 to 1988 were investigated. Besides the clinical examinations, hematological and

immunological marker studies were done. A large proportion of patients in the series showed one or more factors indicative of poor prognosis, as compared to patients in western series. T-cell ALL accounted for 35% of cases and null ALL 30%. There was a larger proportion of patients with high leucocyte counts, L2 morphology and massive organomegaly. Similary mediastinal mass and CNS disease at diagnosis appeared to be more frequent. This study partially explains the poor cure rates in our patients and may justify use of more intensive chemotherapy.

Bronchoscopic and clinicoradiological evaluation of collapse of lung in pediatric age group (Pediater, ENT, Rad Diag, Anaesth)

90 children with clinical and radiological evidence of lung collapse were evaluated by bronchoscopy. The left lung collapse was seen more frequently as against the universal belief that collapse occurs more commonly on the right side. Left lower lobe was the most common site of collapse irrespective of underlying cause. It was also seen that the left sided preponderance was associated with an equal bronchial angulation with respect to trachea. The critical tracheobronchial angulation difference which influences the laterlisation of lung collapse seems to be 7 degrees, below which collapse will occur on left side and above that on the right side. The change in the bronchial angulation with respect to trachea occurs as a function of age.

Clinical, endocrinological and radiological evaluation of male pseudohermaphroditism (MPH) (Pediat, Pediat Surg and Rad Diag)

Twenty five patients with a proved 46 XY karyotype and defective virilisation of external and/or internal genitalia were evaluated. Each patient was subjected to a detailed clinical evaluation, pedigree study, and hormonal evaluation with estimation of basal testosterone, FSH and LH levels and post)HCG testosterone levels. Except one patient with persistent mullerian duct syndrome, all underwent genitography.

The study showed two patients with definite evidence of incomplete androgen insensitivity syndrome (PAIS) including a pair of siblings. 5-alpha-reductase deficiency was presumed in 5 patients including a pair of siblings. Two patients had primary testicular failure and one child had testicular failure secondary to maldescent. One child had persistent mullerian duct syndrome and in 9 patients no final diagnosis could be made. Further special diagnostic tests need to be established for the management of MPH at AIIMS.

Experience concerning female pseudohermaphroditism (FPH) at AIIMS (Pediatr, Pediatr Surg, Rad Diag)

In the last 8 years a total of 63 cases of FPH due to congenital adrenal hyperplasia (CAH) and 4 due to true hermaphroditism were diagnosed. Adrenal adenoma, mixed gonadal dysgenesis, 46 XX male, drug induced FPH, and lymphangioma of clitoris were seen in one each. Even though ambiguity of genitalia was present at birth, only 14 children were brought within the first month of life. Salt wasting symptoms were present in 16 children. Other features of CAH included early virilisation, generalised hirsutism and hyperpigmentation. Clitoromegaly (30), labial fusion (10), scrotalisation of labia (6) and single urogenital sinus (25) were detected in 18 children. Bone age advancement was present in all. Retrograde genitourethrogram was found to be useful for the diagnosis in children with CAH receiving replacement therapy.

Studies on human atrial natriuretic factor (Biochem, Med)

To set up a RIA, several ANP conjugates were prepared, out of which ANP-thyroglobulin conjugate was found best.

Norfloxacin in the treatment of gonococcal urethritis in men. (Dermatol, Microbiol)

Norfloxacin is a synthetic carboxy-fluorquinolone drug, clinically resembling nalidixic

acid. In the present study 800 mg of the drug was administered as a single oral dose in 50 male patients of gonoccal urethritis. All patients except one were completely cured (98%). No side effects of the drug were noticed. The present study shows that Norfloxacin is a potentially useful antimicrobial agent in the armamentarium against gonorrhoea.

Contact dermatitis caused by Indian perfumes
(Dermatol, Microbiol)

In order to assess the frequency of contact sensitivity to perfumes, thirteen Indian perfumes viz. sandal, musk, lady of night, rose, amber, jasmine, rhododendron, patcholi, gradenia, honey suckle, mango, magnolia and lotus were tested on at least 30 cases each by 3 patch test techniques viz. open patch test, the occluded patch test and the cup patch test. Positive tests have been obtained in 11,3,9,7,9,8,4,8,6,6,7,7 and 4 cases respectively.

Serotyping in genital herpes infection seen at the AIIMS (Dermatol, Microbiol)

The study comprised of 50 patients (45 male and 5 female) with herpes genitalis. The patients' age varied between 20-58 years and they were attending the Sexually Transmitted Diseases clinic of the Institute. The duration of the complaints varied between 1-10 days. Swabs taken from the lesions were cultured in 'Vero' cells. Sixteen (32%) of patients yielded positive virus, of these 14(87.5%) were HSV2 and 2(12.5%) HSV1. The study demonstrated a predominance of HSV2 in genital herpes infections in contrast to earlier studies which had shown exclusively either HSV1 or HSV2.

Stimulation of antigenic reactive T cells in lepromatous leprosy - role of lymphocyte growth factors. (Dermatol, Path)

Periphered blood mononuclear cells (PBMC) from lepromatous patients failed to secrete Interleukin 2 (IL2) on stimulation with M.leprae; in contrast

patients with tuberculoid leprosy secreted significant levels of IL2. Supernatants from monocyte rich adherent cells (MoF)) from lepromatous patients inhibited IL2 production from Jurkat cells conditioned by PHA; suppression ranged from 52-70%. Addition of exogenous IL2 to *M.leprae* stimulated cultures induced lymphoproliferation.

Assessment of androgenic status of patients with acne vulgaris Dermatol, Rep. Biol)

Sixty patients (30 male and 40 female) with acne of varying severity were assessed for their androgenic status in the sera. Testosterone (free and bound) and dehydro-epiandrosterone sulphate (DHEAS) were assessed by radio-immuno-assay. No significant differences were detected in age and sex matched male controls.

In the females, total levels of testosterone in 7 and dehydroepiandrosterone levels in 12 patients were elevated compared to the controls; the differences were statistically not significant. The results suggest that circulating androgen levels in patients with acne are not significantly altered.

Prevalence and incidence of skin diseases in school children. (Com. Med., Dermatol)

The entire school-going child population (608) of Chhansa village was taken up for studying the point prevalence and incidence of skin diseases. The overall prevalence of skin diseases was 54.7% (47.6% in males and 70% in females). Pyodermas contributed 18.7%; pediculosis 14%, miliaria 14.7% of all the skin diseases. Incidence of all skin diseases was assessed during July 1987 - July 1988.

Role of CT scan in unilateral sensorineural hearing loss. (Otorhino, Rad. Diag)

48 cases of unilateral sensorineural hearing loss, with or without associated symptoms of tinnitus, giddiness and facial palsy were subjected to high resolution computerised tomography of the temporal

bone. The aim of the project was to pick up early acoustic tumors, or any other pathology accounting for the hearing loss, to study the sectional anatomy of the temporal bone as seen on CT scan and thus to establish the role of CT scan as an imaging modality for temporal bone disease.

In 41 cases an air-contrast cisterno meatography was carried out to rule out an acoustic tumor. Although only one of these cases showed a tumor (that was confined to the internal auditory canal) anomalous vascular loops at the porus acusticus or inside the IAC were frequently seen (21 out of 76 ears studied). Of the 21 such loops 15 were seen on the affected side. Thus it can be assumed that they are an important cause of symptoms like sensorineural hearing loss, tinnitus and dizziness.

7 cases had sensorineural loss due to a head trauma which was associated with facial palsy in 4 cases. A fracture line could be delineated in 6 cases- which was transverse in 3 and longitudinal in 3 cases.

A new approach for early detection of microadenoma of the pituitary (Endocrin, Ob & Gyn.)

Prolactin response to thyrotrophin releasing hormone (TRH) was undertaken in women with hyperprolactinemia for early detection of pituitary microadenoma. In 10 hyperprolactinemic and 5 normoprolactinemic women, serum prolactin levels were estimated, at 15, 30, 45 and 60 minutes after administration of TRH. Prolactin response to TRH was normal in all women who did not have microadenoma. One of these two patients later on developed microadenoma of pituitary during follow up. Thus TRH test may help in predicting cases of benign hyperprolactinemia who may subsequently develop pituitary microadenoma.

Power spectral analysis of orthogonal Z lead in patients with recurrent ventricular tachyarrhythmia (VT)(Biophy, CTC)

Five patients (age 18-50 yrs) with documented recurrent ventricular tachyarrhythmia and 5 matched control were studied. Orthogonal leads X,Y,Z were recorded on data tape recorder. Z lead was fed into a digitizing scope (Tactronic 5845) and the terminal QRS ST segment was digitized. The digitized data for 60 complexes were averaged using HP- 85 microcomputer. Fast fourier transform analysis was then used to get the power spectrum of the terminal QRS-ST region. The power spectral analysis revealed peaks in the low frequency range in all the 7 patients with VT. No peaks were seen in the control group.

Left ventricular systolic function in patients of Thalassemia major.(CTC, Pediat)

Forty patients of B Thalassemia were included in the study. Systolic function of LV was studied by echocardiography. Only in one patient ejection fraction was decreased and this patient died. No relationship was found between age and velocity of circumferential shortening or LV posterior wall % thickening. Pre ejection period was decreased in 11 patients and normal in others. PEP/LVET was increased only in one patient. Pericardial effusion was seen in 2 patients, Speckled & thick IVS was seen in four cases.

Detection of early myocardial ischemia - An experimental study in rats (CTC, Path.)

Experimental myocardial ischemia was produced in rats by ligating the anterior descending branch of the left coronary artery with an aim to identify a sensitive technique of detecting early myocardial ischemia. Acridine orange fluorescence emerged as the most sensitive method to detect early myocardial ischemia. This was observed as early as 15 minutes after ligation. Quantitative studies revealed that the ischemic zone increased progressively as the duration

of ischemia was prolonged. Further it was also observed that subendocardial ischemia showed a statistically significant increase whereas the epicardial ischemia did not show a significant change with the increase in time interval after coronary artery ligation.

Static lung functions in mitral valve disease: (CTC, Med).

44 patients admitted for mitral valve disease had pulmonary function tests on a constant volume variable pressure body plethysmogram. The parameters measured were lung volumes, airway resistance parameters, flow rates and diffusing capacity of lung for CO. The pulmonary function tests were indicative of a restrictive lung disease as indicated by a reduction in PVC but a normal FEV/FVC ratio. The TLC was mildly reduced but FRC was normal, DLCO showed a moderate reduction.

Effect of mitral valve replacement on pulmonary function tests :(CTC, Med)

Pre-op and post-op pulmonary functions tests were done in 32 patients with mitral valve replacement. Any change in the values from pre-op to post op were correlated with clinical, radiological and haemodynamic parameters. Marginal improvements were seen in FVC, FEV, PEV, V25 and SG aw. The essentially irreversible changes in static lung functions seen in the Class III to IV symptomatic group indicates that earlier timing of surgery may result in more reversible pulmonary function.

Quantitative histopathological and ultrastructural evaluation of congestive heart failure of unknown origin employing endomyocardial biopsy. (CTC, Path)

Endomyocardial biopsies from 25 patients of congestive heart failure of unknown origin diagnosed clinically as dilated cardiomyopathy were analysed.

Quantitative analysis was done by an IBAS KONTRON image analyser; Several morphologic measurements of the myofibres and interstitium were made and correlated with the hemodynamic data (Pulmonary artery mean pressure; left ventricular end diastolic pressure and left ventricular ejection fraction) of these patients. Percentage area occupied by muscle fibres was much reduced in these cases with a corresponding increase in fibrosis of the interstitium. This parameter showed a good correlation with the LVEF and an inverse correlation with the LVEDP.

Persistent atrial standstill - A rare electro - physiological abnormality : (CTC,Path)

Five cases of persistent atrial standstill underwent endomyocardial biopsy. One case each showed inflammatory myocarditis, endomyocardial fibrosis and a normal morphology. Two cases showed cardiac amyloidosis. Biopsy seems to be useful in highlighting the underlying disease process in some cases of this disease entity.

Endomyocardial biopsy in patients with ventricular tachyarrhythmias of unexplained etiology. (CTC, Path)

A total of 11 patients underwent cardiac biopsy. While in 5 patients inflammatory myocarditis was noted the rest of the six cases showed nonspecific morphologic changes only. The role of inflammation if any, in this disease entity needs to be evaluated further.

Endomyocardial fibrosis - An endomyocardial biopsy study (CTC,Path)

Endomyocardial biopsies (EMB) were performed in 14 angioproven cases of endomyocardial fibrosis. Endocardium showed moderate to marked thickening in 10/14 cases while it was normal in four. No "Zonal/layering" pattern of the endocardium as is seen at autopsy was detected in the biopsy material. Thrombus, inflammatory granulation tissue and inflammatory cells were also not encountered.

Immunoelectron microscopy and culture of pituitary adenomas (Endocrin, NSC, Path)

Ten cases of mixed GH and PRL secreting adenomas were studied using double labelling IEM.. Colloidal gold particles of 10 nm and 20 nm size were used for localization of PRL and GH respectively. Six patients presented with acromegaly alone while four presented with acromegaly, amenorrhea and galactorrhea. All had raised serum GH and PRL levels. By IEM, some secretory granules were unbound, some others showed only PRL or GH binding but the majority (50 to 96%) showed double labelling for GH and PRL. These cells containing both hormones often within the same secretory granule are called mammosomatotrophs and these tumors as mammosomatotroph adenomas. Our work suggests that mammosomatotroph adenomas are not uncommon, as reported by others.

Twelve cases were studied by tissue culture for a period of about 4 weeks. Nine were from acromegalics and all secreted PRL in addition to GH into the medium. Therefore, it appears that some mammosomatotroph cells are present in all GH secreting adenomas.

The occurrence of mammosomatotrophs refutes the "one cell - one hormone" hypothesis. It raises the possibility of simultaneous gene activation for GH and PRL in a single cell.

Corpora amylacea: An immunohistochemical, ultrastructural, immunoelectron microscopic and morphometric study: (NSC, Path)

Corpora amylacea (CA) in brain from 10 cases were studied by light microscopy, immunohistochemistry using antibody against glial fibrillary acidic protein (GFAP) along with their morphometric measurements and electron microscopy (EM). Immunoelectron microscopy (IEM) using colloidal gold particles was also performed. By IEM, some CA were completely negative while others showed varying degrees of positivity. IEM confirmed the presence of GFAP in all CA.

From the present study, it is suggested that CA formation starts with the accumulation of intracytoplasmic GFAP negative material in astrocytes which gradually increases in size. The accumulation may be multifocal in origin, later coalescing to incorporate adjacent glial filaments or the accumulated material may gradually encroach on to the surrounding glial filaments. The glial filaments thus incorporated disintegrates and gets inseparably mixed with the amorphous matrix of corpora. The present study clearly demonstrates that GFAP does enter into the constitution of the corpora amylacea.

Analysis of childhood tumors with special reference to tumors of neural crest origin: (NSC, Path)

All solid malignant tumors occurring in children aged 15 and below between 1977 and 1986, obtained from the records of the department, were analyzed with respect to their relative incidence, histologic type as well as age and sex distribution.

The total number of tumors during this period was 880. A marked overall male preponderance was present. The commonest were malignant lymphomas accounting for 25.6% of the total, Hodgkin's lymphoma being much more frequent than non-Hodgkin's type and a majority occurred between 6 and 15 years of age. The next common were the tumors of the central nervous system (22.5%). Astrocytomas were the commonest CNS tumor followed by medulloblastoma. The peak age incidence was 11 to 15 years for astrocytomas and 6 to 10 years for medulloblastomas. Soft tissue sarcomas and bone tumors were next in frequency accounting for 13.3% and 9.2% respectively. Nephroblastoma, neuroblastoma and retinoblastoma formed only 6.5%, 4.1% and 3% respectively of all the solid tumors. Gonadal tumors and carcinomas were very rare.

Eighty tumors of neural crest origin (18 neuroblastoma, 5 ganglioneuroblastoma, one ganglioneuroma, 5 olfactory neuroblastoma, 7 retinoblastoma, 14 pheochromocytomas, 4 paragangliomas, 14 malignant melanomas, 2 melanotic neuroectodermal

tumor of infancy and 10 neuroendocrine tumors like oat cell carcinoma and carcinoid) were studied by immunohistochemical staining using antibodies to S-100 protein neurofilament protein of 200-Kd mol.wt. and glial fibrillary acidic protein (GFAP). It was found that neurofilament of 200-kd. molecular weight is of no use in diagnosis of undifferentiated neuroblastomas on formalin fixed paraffin embedded tissues.

S-100protein was positive in the tumor cells and satellite/sustentacular cells of neuroblastoma and its variants, pheochromocytoma, paraganglioma, olfactory neuroblastoma, retinoblastoma, malignant melanoma and melanotic neuroectodermal tumor of infancy. This common marker of tumors of diverse morphology is suggestive of their common origin from neural crest. The neuroendocrine tumors were negative for S-100 and their origin from neural crest remains debatable.

Ultrastructural study of blood vessels in localized chronic infections: Their relationship to cerebral edema: (NSC, Path)

The blood vessels in 12 cases of tuberculoma, and 2 each of cerebral abscess, cryptococcosis, cysticercosis and aspergillosis were studied by electron microscopy. The blood vessels in the lesional as well as perilesional areas were examined. The endothelial cells in the lesional areas showed numerous microvilli along with increased pinocytosis indicative of increased permeability. The pinocytosis were located on both luminal and abluminal aspects. The tight junctions were intact. The basement membrane showed thickening and multilayering in many areas. There was fragmentation of the basement membrane at places. In the perilesional areas, the endothelial cells showed evidence of increased permeability with increase in microvilli and pinocytotic vesicles. However, basement membrane appeared intact.

Use of Buserelin (LHRHa) in the treatment of precocious puberty : (Endocrin, Pediat)

Ten children with precocious puberty were treated with buserlin (LHRHa) for 4 to 12 months. Buserlin was started in a dose of 4 ug/kg body weight (in 8 children) or 200 ug twice daily as nasal spray (in 2 children) and dose was increased till LH and FSH response to LHRH was suppressed. This was achieved with Buserelin 6 ug/kg BW in 6 children, 10 ug/kg in one and 16 ug/kg in another and 400 ug/day as nasal spray in two. There was a progressive decrease in serum estradiol levels in girls (320 pmol/L to 115 pmol/L) at 6 months and testosterone levels in boys (15.2 nmol/L to 9.6 nmol/L) at 6 months. Arrest/regression of secondary sexual characteristics and decrease in growth velocity were noted in all children. No advancement in bone age was noted in the 7 patients who received treatment for more than 6 months. Buserelin was effective in suppressing gonadotrophin and decreasing sex steroid levels and growth velocity.

Gastrointestinal adenomas in Indian patients (GE, Path)

The objective of this study was to demonstrate the existence of adenomas in India and compare the findings with those reported elsewhere. Seventeen (2.06%) colorectal adenomas were detected among the 824 colonoscopic examinations conducted from 1978 to 1987. Synchronous malignant tumors were present in 3 (17.6%) of the 17 patients. These numbers should represent a maximum rather than a minimum incidence of this disease process. Thus, though adenomas exist in India, they are relatively uncommon in comparison to Western countries. Similarly in a period of 6 years, six patients of adenomatous polyps in stomach and three in the duodenum were detected. Synchronous cancer was present only in one of 3 duodenal polyp patient. Thus like colonic polyps, the adenomatous polyps in upper gastrointestinal tract are rare tumours in Indian patients.

Post-cholecystectomy syndrome: The role of endoscopy. (GE, Surg)

Of 190 patients with postcholecystectomy symptoms, 168 (88%) patients were found to have a pancreaticobiliary condition responsible for the symptoms and among them retained common bile duct stone was the commonest condition. Endoscopic retrograde cholangiopancreatography was shown to be the investigation of choice, particularly as it was followed logically by endoscopic sphincterotomy which provided a ductal clearance in 84% of patients having retained common bile duct stones.

Drug induced erosive mucosal disease in rheumatoid arthritis. (GE, Med, Path)

A group of 90 patients with rheumatoid arthritis were randomly given either aspirin or naproxen or placebo for a period of 3 months. They were evaluated clinically as well as endoscopically. It was noted that the patients receiving either of the drug had a significant fall in haemoglobin and had the erosive mucosal disease of the stomach and duodenum more often than those on placebo. It was interesting to note that aspirin caused more of duodenal injury whilst naproxen caused more of gastric injury.

Conformational basis of the receptor-binding potency of normal and mutant insulin molecules (Biophys, Med)

Residues 23-26 (Gly-,Phe-,Tyr) of the B-chain of insulin constitute a critical area of the receptor-binding region of the molecule. Three chemically distinct mutant insulins have recently been identified in patients with NIDDM, each involving substitution of either B24 or B25 phenylalanine. Two of the mutations have been unambiguously characterized: a B25 phenylalanine-to-leucine substitution (B25 Phe - Leu), and the other, a B24 phenylalanine-to-serine (B24 Phe - Ser). We have calculated the preferred conformations of normal and mutant insulins using a global optimization method developed by us earlier. The mutant insulins exhibit significant alterations in

conformation and in the average distances between amino acid side-chains as compared to normal insulin. Therefore, the decreased binding affinity of mutant insulin could be either due to an alteration in the nature of the substituted residue (hydrophilic in place of hydrophobic) or to the alteration in one of more critical side-chain distances in the case of a hydrophobic to hydrophobic substitution.

A mathematical model for insulin kinetics II. Extension of the model to include response to oral glucose administration, and application to insulin - dependent diabetes mellitus (IDDM) (Biophys, Med)

A generalised nonlinear mathematical model which incorporates beta-cell kinetics, a glucose - insulin feedback system and a gastrointestinal absorption term for glucose, is presented. Numerical simulations using this model lead to time variations of plasma glucose and insulin levels that are consistent with clinical observations on normal groups. The results obtained after suitable reduction in some of the parameters are in agreement with the clinical profile and laboratory data in IDDM. Linear stability analysis of the equations shows that there is a change in the nature of the stability in the transition from the normal case to IDDM, and it is the decrease in the beta cell function which causes this change.

A mathematical model for insulin kinetics in non-insulin dependent diabetes mellitus (NIDDM) (Biophy, Med)

The mathematical model described earlier was applied to NIDDM, both obese and non-obese. There are eleven parameters with assigned values. By varying one or more of these parameters in NIDDM, data consistent with the observed relationship between glucose and insulin levels in fasting, and following glucose administration, were obtained. The results indicate that obesity is associated with an increase in (i) beta cell function, (ii) peripheral resistance to insulin action and (iii) insulin loss independent of glucose. Subjects with NIDDM, both obese and non-obese, exhibit

similar patterns of parameter variations as compared to their respective normal controls, viz., (i) a decrease in both beta cell function and capacity, and (ii) an increase in peripheral resistance. An additional feature of NIDDM non-obese is increased insulin loss independent of glucose.

Lymphocyte subsets and HLA antigens in systemic lupus erythematosus (SLE): possible indicators of disease groups (Anat, Med)

41 patients with SLE were included in this work. Lymphocyte subsetting did not correlate with any disease subgroup. HLA DR4 had a significantly high relative risk. All patients of acute SLE showed significant reduction of CD4+T cells.

Neuropsychiatric manifestations in systemic lupus erythematosus(SLE) (Med, NSC)

50 patients with SLE were studied prospectively for a period of 6 months to 2 years. 54% showed neurological manifestations, 30% with major organic syndromes while 20% with minor neurological manifestations. 36% of the patients had psychiatric manifestations of whom 26% had depression and 10% anxiety. CT scan and EEG could not pick-up underlying abnormality in the brain in any of these groups of SLE patients with neurological involvement.

Myocardial involvement in systemic lupus erythematosus (SLE) as assessed by ECHO and MUGA (CTC, Med, Nuc. Med.)

25 patients with SLE were included in the study. No definite and unequivocal left ventricular function abnormality could be detected by these tests. Study during acute exacerbation may be necessary. Also, endo-myocardial biopsy may be necessary if cardiac symptoms remain unexplained.

Correlationn of clinical and immunological parameters with renal histopathology in patients with systemic lupus erythematosus (SLE) (Med, Path)

25 patients with SLE were studied in depth. Immunological parameters did not correlate with the disease activity. Renal activity index correlated with renal histopathology. Simple urine sediment examination was the single most important parameter for measuring the activity in SLE nephropathy.

Multifactorial determinants of pregnancy outcome in gestational diabetes (GD) and gestational impaired glucose tolerance (GIGT) Med, Ob &Gyn)

GD constitutes a high risk pregnancy group and poses a serious health challenge. There is i) a general lack of data regarding maternal morbidity and foetal outcome in GIGT and (ii) assess maternal complications and foetal outcome in GIGT. Venous whole blood glucose > 140 mg/dl at one hour, and > 115 mg/dl at two hours, following oral administration of 75 gm glucose, during second trimester, and corresponding values of > 150 mg/dl and > 120 mg/dl, respectively during the third trimester were defined as diagnostic criteria for GIGT. There was a significantly higher incidence of several complications including hypertension, bacterial and mycotic infections, hydramnios and intrauterine death in GIGT, compared to control group; this incidence was, however, lower than that in G.D. Indicators of poor prognosis in GIGT included severe anaemia, malnutrition, hepatic dysfunction, urinary tract infection, toxemia of pregnancy, diabetic ketoacidosis, and medico-social deprivation. A numerical scoring +system was developed which showed both additive and synergistic interaction of multifactorial determinants as indicators of poor outcome of pregnancy in GD and GIGT.

Retrospective five year study of poisoning cases at AIIMS Hospital carried out to prepare a data base as a source of poisoning surveillance information (Pediat, Pharmacol)

Database on poisoning has been prepared. Detailed record of individual patient has been entered and retrieved by the poison code or CRNO. Total number of patients with each type of poisoning, percentage mortality and survival has been retrieved. Correlations of epidemiological factors and treatment can be drawn with the incidence and mortality. Types of poisonings can be enlisted alphabetically. The data can be edited or added when required and it can be saved on CTD. "A Poison Information and database has been prepared".

A total of 271 patients of poisoning in five year period (1983 January, 1987 December) were admitted in AIIMS, out of these 212 patients recovered and were discharged. Percentage mortality was 21.77. Aluminium phosphide poisoning was most common (13.3%) with highest mortality (67.57%).

Treatment of progressive systemic sclerosis with 5-flurouracil (Med., Pharmacol)

Fifteen patients were inducted into the trial for treatment of progressive systemic sclerosis with 5-flurouracil. Eight patients completed 6 months therapy. The results show that there is no significant improvment with this treatment.

Emptying function of vagotomized intra-thoracic stomach: (Nuc. Med, Surg)

Stomach used following oesophagectomy was studied in 24 patients using Tc99m DTPA Scan. The patients were randomised into a control group. Results showed delayed gastric emptying in both. The delay was, however, more in the control group than in the study group. Thus it is concluded that gastric emptying is delayed following vagotomy and this delay is not completely corrected by pyloroplasty.

Calcium levels in human mammary tissues and correlation with oestrogen receptors and histological features.
(Rep.Biol, Surg)

Tissue calcium in non-neoplastic and malignant neoplastic part of surgically resected specimen for cancer of the breast were studied along with estrogen receptor (ER) levels. Calcium and ER levels were found to be significantly higher in malignant than non-neoplastic tissue. The ratio by which calcium in malignant tissue exceeds the non-neoplastic tissue is invariably more than one, however, the ratio has no significant correlation with histological features of grading and staging. Further studies are required to fully interpret the relation of calcium and ER levels to tumour growth.

Anterior chemotherapy in locally advanced breast carcinoma. (IRCH, Surg)

The role of anterior chemotherapy has been studied in 66 patients (T4,N 0-3, M0). The efficacy of CAF (35 patients) with CMF (31 patients) was compared. Three cycles of chemotherapy were given; patients with residual tumor less than or equal to 2cm were given radical radiotherapy, and those with larger tumors were operated (MRM/RM). Patients on the CAF arm received 3 CAF and 6CMF as adjuvant therapy; those on the CMF arm received 9 CMF. Patients had a median age of 45 years, 62.1% were premenopausal, mean size of the primary tumor was 72 sq.cm. and median duration of symptoms was 8 months. These parameters were similar in patients on both arms.

Response rates with both regimes were similar (CAF= 85.7%, CMF = 71%), though CAF achieved more complete responses (CR) (25.7%) than CMF (3.2%), $p < 0.05$. Side effects were similar, and consisted mainly of myelosuppression and vomiting. Chemotherapy followed by radiotherapy achieved CR in 42.8% patients on CAF, but only 9.7% on CMF ($p < 0.01$), and surgery could be avoided in these patients. Only 4.5% patients remained inoperable after chemotherapy.

Over a follow-up of 3 - 37 months, 17.1% patients on CAF and 9.7% on CMF have recurred; all except one patient on each arm had distant metastases. Two patients (3%) have died till date. Recurrence was more frequent in younger patients (median age = 38 years) usually occurring while on adjuvant chemotherapy and within one year of diagnosis. Chemotherapy regime, type of local treatment, and initial response did not affect recurrence rate.

This study suggests that CAF achieves more CR than CMF in locally advanced breast carcinoma. However, patients who cannot be given adriamycin may still benefit from CMF as regards local control of disease with surgery.

Duodenogastric bile reflux (Nuc. Med, Surg)

Duodenogastric bile reflux was studied in intrathoracic vagotomized stomach in 20 subjects. Endoscopically 25% of the patients had evidence of bile reflux. Quantitative estimation of total bile acids in gastric aspirate was also significantly high in these cases. On hepato-biliary scanning, however, nearly 30% of patients, showed evidence of duodenogastric reflux after thoracic transposition of stomach following oesophagectomy. Thus it appears that hepatobiliary scanning is a more accurate method of detecting duodenogastric bile reflux. Notwithstanding the degree of accuracy it is concluded that intra-thoracic stomach is associated with duodenogastric bile reflux.

Value of routine operative cholangiography during cholecystectomy. (Rad.Diag., Surg)

238 patients underwent per-operative cholangiography during cholecystectomy. 9.2% (22) had CBD stones on exploration. 72 of the 238 patients had one or more conventional indication of CBD exploration and 21 had CBD stones. Only one patient with CBD stone had no conventional indication of CBD stone exploration. The number of indications present correlated with incidence of CBD stones. When more than 4 indications were present, 100% patients had CBD stones. Seven (2.5%) patients had false positive

cholangiogram. Biliary tract anomalies were present in 40 (16.8%) patients.

Optic nerve injuries (NSC and ENT)

A total of 120 cases were prospectively analysed with respect to the clinical, radiological, and electrophysiological findings. These were correlated with the outcome. Fifty eight percent of patients showed visual improvement. There was a good correlation between the visual evoked potential findings and the outcome. Only 28 patients were subjected to optic canal decompression. None of the patients who had no vision prior to surgery benefitted by the decompression.

Pressure - volume response of the cranial and craniospinal CSF space in dogs (NSC, Biomed Eng)

The major results is that upto an addition of 2 ml of fluid in the ventricles (the maximum possible compatible with life) the spinal compartment does not exhibit any elastomechanical coupling with the cranial space.

Study of saccades in parkinsonism: (NSC, RPC)

An indepth study of various groups of saccades were conducted on 20 patients of Parkinsonism and they were compared with saccades elicited from a matching group of controls. The various groups of sccades studied were of the voluntary and reflex categories, which had horizontal (leftward and rightward) and vertical (upward and downward) subgroups. Comparisons between the different groups revealed that multiple step saccade was a hallmark in the patients. Only those parts of the saccades were involved when the eye was in motion, with the latest period being significantly increased. The most significant observation contrary to early reports was that the angular velocity during the saccade was not affected though the saccade was lengthend and it was because of intervening latent periods preceeding every corrective saccade. The saccadic involvement was proportional to the grade of

the disease and EOG may have a diagnostic lateralising value during evaluation of a patient of parkinsonism.

Studies on tissue receptors & metabolic effects of phenytoin: (NSC, RPC)

In the earlier studies, treatment of rats chronically with phenytoin was observed to cause an increase in body weight, appearance of a 110 KD protein in liver homogenates, an increase in an 89 KD liver protein & 34 KD spleen protein, and a persistent decline in total brain RNA content. In vivo labelling with ^3H - uridine was carried out to assess the effects on rates of protein & RNA synthesis. A decrease in the labelling of RNA in brain, but not in other tissues was observed, which would be consistent with the observed decrease in net RNA content in this tissue. The spleen RNA showed an enhanced labelling. There was no significant alteration in lens macromolecules on treatment with phenytoin.

Evaluation of forskolin in management of open angle glaucoma. (Nuc. Med., RPC)

The intraocular penetration and pressure lowering effect of Forskolin was studied in normal rabbits and clinically in eyes of open angle glaucoma (OAG) The concentration of Forskolin, labelled with TC 99 in the aqueous humour of rabbit eyes at 1/2 hour was $1.68 \pm 0.5 \text{ ug/100 ul}$ and $4.0 \pm 3 \text{ ug/100 ul}$ at 3 hrs. was 9.2% at 1/2 hour and reached to 9.4% at 3 hours and 20% at 7 hours After water loading at 2 hrs. 19.2% drop of forskolin alone produced significant fall of IOP, and had additive effect with both pilocarpine and timolol.

Study of the prevalence of primary open angle glaucoma and ultrastructural study of trabecular meshwork in diabetes mellitus with reference to NIDDM/IDDM. (Biophys, RPC)

Out of 200 cases of primary open angle glaucoma 42 patients showed positive glucose tolerance test. Prevalence of POAG in NIDDM was 16% whereas none of IDDM patients had POAG. Electronmicroscopic study of

trabecular meshwork showed thickening of basement membrane with deposition of mucopolysaccharides and glycogen infiltration in the endothelial cells. It is hypothesised that these changes may be responsible for higher prevalence of POAG in cases of diabetes mellitus.

Bio availability of pilocarpine nitrate and borate in aqueous humour and their clinical evaluation with clonidine (Clinico-experimental study) (Nuc Med, RPC)

The mean aqueous humour concentration of pilocarpine borate was higher than pilocarpine nitrate at shorter intervals of time. However, at longer intervals the concentration of pilocarpine nitrate was higher than pilocarpine borate. Pilocarpine borate was 2-3 times more effective in lowering IOP than pilocarpine nitrate. Combination of pilocarpine nitrate and borate (1%) drop with clonidine (0.125%) was 2-3 times more effective. Clonidine produced mydriasis but no fall of blood pressure. The drugs were tolerated well without any local and systemic side effects.

Genetic study of congenital glaucomas: (Anat, RPC)

The genetic study of primary congenital glaucoma in 57 cases showed autosomal recessive mode of inheritance in Indian population. Dermatoglyphic study revealed that the main line index was significantly lower in patients than controls. HLA - A9 B5 and B13 showed increased frequency (38.59%, 40.35% and 15.78%) of occurrence in these cases. Haplotype A9 BW35 revealed negative linkage disequilibrium. No structural or numerical abnormality of chromosome was seen in this study.

Feasibility study of primary and secondary prophylaxis of Rheumatic Fever/Rheumatic Heart Disease through existing health infrastructure (ICMR multicentre study, Com. Med., CTC)

Secondary prophylaxis was shown to be feasible. Multipurpose health workers (MPW) can be suitably trained to inject benzathine penicillin. They could

also treat sore throat during their beat programme, and carry out health education. Health education materials, including a video film, were prepared. A district level project is scheduled to begin next year.

Evaluation of growth hormone profile in children with proportionate short stature(Rad. Diag., Pediat)

A prospective study was conducted to evaluate the incidence of growth hormone deficiency (GHD) using high dose clonidine challenge and insulin hypoglycemia test. GHD accounted for 25% of proportionate short stature. Skeletal maturation was severely retarded with a lag of 4.8 ± 1.1 years.

High dose clonidine was found to be a better stimulus of growth hormone release compared to insulin hypoglycemia test. Adverse effects were more serious with insulin induced hypoglycemia. Low dose clonidine test had no significant side effect but was associated with a large number of false positive sub-normal tests(sensitivity 60%).

Clinical, endocrinological and radiological evaluation of male pseudohermaphroditism (MPH).(Rad. Diag., Pediat)

25 patients with proved 46 xy karyotype and defective virilization of external and/or internal genitalia were evaluated. All patients were subjected to pedigree study, detail hormonal assay, and 24 patients underwent genitogram. The study showed 2 patients with definite incomplete androgen insensitivity syndrome and 5 patients with PAIS including a pair of siblings. 5 alpha-reductase-deficiency was presumed in 5 patients including a pair of siblings. 2 patients had primary testicular failure and one had maldescended testis with testicular failure. One child had mullerian duct syndrome and in 9 patients no final diagnosis was made.

Experience with female pseudohermaphroditism (FPH) at AIIMS (Rad. Diag., Pediat.)

Of the 63 cases of FPH seen at intersex clinic 34 were due to congenital adrenal hyperplasia (CAH) and 4 due to true hermaphroditism. Adrenal adenoma, mixed gonadal dysgenesis, 46 xx male, drug induced FPH and lymphangioma of clitoris were seen in one each. Serum 17 hydroxyprogesterone levels were elevated in 18 children. Retrograde genitogram was useful in demonstration of internal genitalia in 8 children.

Anorectal malformation (ARM) - its correlation with blood glucose in neonates and mothers. (Rad. Diag., Ped. Surg.)

ARM is considered as a minor variant of "Caudal regression syndrome" - a pathognomonic malformation in diabetic mothers. To establish incidence of maternal diabetes amongst neonates with ARM blood glucose level of both mother and neonate was estimated in first post-partum week. 2 out of 26 neonates with ARM (7.7%) were infants of diabetic mothers. The offsprings of a control group of 24 diabetic pregnant mothers were normal.

Clinical observations of perineal morphology in male newborns with anorectal malformation. (Rad. Diag, Ped. Surg.)

In order to clinically differentiate high and low anorectal malformation, the perineum was observed in 26 neonates with anorectal malformations. It was found that the perineum was short and base of scrotum was very close to anal dimple in high anomalies whereas the perineum was wide and base of the scrotum was quite away from anal dimple in low anal anomalies.

Ultrasonographic evaluation of optic neuritis and papilloedema. (Rad. Diag., RPC)

A prospective study of 11 patients of optic neuritis and 9 cases of papilloedema was carried out and the ultrasonographic parameters studied. Definite

difference was found in the two conditions sonographically which have not been described before.

A comparison of trans-abdominal ultrasonography, urine cytology and check cystoscopy in the evaluation of follow-up of carcinoma of the urinary bladder. (Rad. Diag., Urology)

97 patients were studied. The results indicate that abdominal ultrasonography should be the first investigation to detect recurrence of carcinoma bladder. However rate of false negative examination is high with a tumour less than 5 mm in size. Urine cytology is adjunctive and can complement ultrasound to enhance accuracy of diagnosis of tumours.

Check cystoscopy and biopsy remain the most sensitive and accurate method to detect tumor recurrence.

COLLABORATIVE RESEARCH IN PROGRESS

MPTP model of Parkinson's disease in rhesus monkey: (Anat, NSC)

Both hemiparkinson and total Parkinson models of rhesus monkey are produced by systemic and unilateral intracarotid injection of 1-methyl, 4-phenyl-1-2-3-6 tetrahydroxy pyridine (MPTP). Bilateral or unilateral rigidity of limbs, tremour and difficulty to handle food were noticed in these monkeys. There was neuronal loss in the substantia nigra according to the aminergic fluorescence, morphological characteristics and cell counts when compared to the control primates or the unaffected side in the hemiparkinson model. A large number of degenerating neurons could be seen during the early period of the study confirming the neuronal loss following MPTP treatment.

Transplantation of fetal substantia nigra in the MPTP model of Parkinson Primates: (Anat, NSC)

One monkey from each total and hemi Parkinson models was transplanted with fetal substantia nigra of 55 gestation day into the striatal region. Both the animals showed perceptible recovery from the signs after 3 weeks of transplantation. Dopaminergic neurons were identified in striatum of these animals.

Behaviour of the transplanted adrenal medullary cells in the the anterior chamber of the eye, lateral ventricle and striatum of rat: (Anat, NSC)

Short term recovery of Parkinson patients are reported following autologous transplantation of chromaffin cells of adrenal medulla into the striatum of these patients. Dopamine available along the

synthetic pathway of catecholamines in these cells are reported to be the cause for such recovery. Our studies of medullary chromaffin cells transplanted into the anterior eye chamber, lateral ventricle and striatum between 30 and 180 days have shown that these cells assume different shapes and slowly degenerate. Degeneration of the autologous cells was slower compared to the cells in the allografts. These initial results indicate that these cells are unable to survive long on transplantation.

Behaviour of fetal nigral cells in the anterior chamber of the eye, lateral ventricle and striatum in rat:(Anat, NSC)

Fetal nigral cells differentiate and mature at the different sites on transplantation. Myelination of the fibres, and synaptogenesis were also observed in these transplants. However, 40 days after transplantation neuronal changes indicating early degeneration were observed in relation to some of the neurons. As the age of the transplant advanced the number of neurons thus affected were also more. The possible explanation attributable for such changes from this preliminary study is that these neurons lack the connections with the proper target sites. Slow rejection by the host is another possibility, though evidence for this is not yet available.

Kainic acid lesion and transplantation in the preoptic area in rat: (Anat, NSC, Physiol)

Lesion of the preoptic area using Kainic acid was confirmed by studying the changes in the body temperature and vaginal cyclicity. These rats had lower body temperature and steeper rise in the temperature following exposure to hot environment. Persistent vaginal cell cornification was also seen.

There was recordable recovery of both these parameters following transplantation of fetal preoptic area in these animals when compared to the control rats

with lesion.

Effect of anticonvulsant drugs and epilepsy on reproduction in males: (Anat,NSC)

Epileptics on anticonvulsant drugs (AEDs) have often complained of hyposexuality in males and anovulatory cycles in females. Increased incidence of congenital malformations has been reported in offsprings of epileptic women on antiepileptic drugs. To study the effect of drugs on reproductive system, semen analysis was done in male epileptics and cytogenetic analysis was done to assess the genotoxic effects of AEDs.

Semen samples were analysed from 67 male epileptics. Of these 26 samples had normal sperm concentration and 38 showed below normal (WHO standard) and 3 samples were azoospermic. Qualitatively sperm motility was observed to be good in 26 samples and poor in 38 samples. Morphologically abnormal sperms increased in a few samples. Thirty-two epileptics who were on hydantoin/hydantoin+carbamazepine/valproate therapy showed no correlation between semen analysis, dose and duration of the drugs used.

Leucocyte cultures were analysed from 44 epileptics and controls for chromosomal abnormalities and sister chromatid exchange frequency. Percentage of total chromosomal aberration in epileptics was comparable to controls. Sister chromatid exchange (SCE) frequency was significantly increased in epileptics (9.25 ± 3.26) as compared to controls (4.286 ± 1.41). No linear correlation was observed between SCE frequency dose and duration of the drugs used. SCE frequency in epileptics was not age dependent.

Results suggest that AEDs are mutagenic and do not have a direct effect on testis.

Fetal diagnosis : An approach towards reducing incidence of birth defects: (Anat, Ob & Gyn.)

Alpha feto protein (AFP) levels were measured in 2,500 samples of maternal serum using ELISA for prenatal diagnosis of neural tube defects, chromosomal aneuploidies and other congenital malformations. In about 300 cases follow up was done till delivery/abortion. In some cases AFP levels did not match with the pregnancy outcome because of wrong gestational ages.

AFP is an useful marker not only for neural tube defects but for all cases of high risk pregnancies. Measurement of AFP levels at 14-16 weeks of pregnancy using maternal serum is suggested for all high risk pregnancies.

Role of MHC and Non-MHC genetic factors in governing susceptibility to rheumatic heart disease: (Anat, CTC)

The study has been extended to 54 patients with rheumatic heart disease and 34 matched controls of North India origin. Sixty three percent of the patients carried the B cell alloantigen D8/17 as compared to its frequency of 12.5% in controls, $p < 0.001$.

A marginally increased frequency of DR3 and significant reduced frequency of DR2 was also observed in these patients. However, the most significant positive association was with HLA-DQW2. An analysis of the co-occurrence of DR/DQ antigens with D8/17 in these patients showed DQW2 association in both D8/17 positive as well as the negative group, although more significantly with the former. These observations suggest that i) HLA and B cell alloantigen system encoded by D8/17 are independent of each other, ii) disease susceptibility genes in RHD may be nearer to the HLA-DQ locus than HLA-DR, iii) there may be some degree of 'epitope sharing' between the DR/DQ antigens and B cell alloantigen D8/17. Molecular hybridization procedures including RFLPs using specific cDNA probes

for HLA-DR and DQ gene products and D8/17 will explain whether there exists any structural homology between the two antigen systems.

HLA-D region genes in governing susceptibility to D-penicillamine induced myositis: (Anat, Ped)

The records of 718 consecutive patients having definite or classical rheumatoid arthritis and on treatment with D-penicillamine (DP) revealed that at least 10 developed poly-dermatomyositis following DP treatment. An immunogenetic profile of these patients was done to look for (i) any specific MHC association with this side effect of D-pen (ii) Immunogenetic differences between sporadic RA and DP-PM in RA patients as compared to idiopathic dermatopolymyositis. Eight out of 10 patients showed HLA-DR2. An interesting finding was 100% positivity of HLA-DQW1 in these patients. No such association was observed in patients with idiopathic myositis. DR4 which is shown to be associated with rheumatoid arthritis was significantly lowered in these patients. The study suggests that DR4 bearing supratypes exclude the development of DP-myositis in RA patients whereas DR4 negative RA patients carrying DR2 and/or DQW1 are more prone to develop DP induced polymyositis.

Immunogenetic spectrum of HLA-B27 associated spondyloarthropathies: (Anat, Ped)

A total of 1185 patients have been studied so far under different categories of seronegative spondarthritides (SSA) for diagnostic purposes. Ninety three percent of patients with ankylosing spondylitis and 80% with Reiter's syndrome were positive for B27. At least 50% of patients negative for B27 had B27-CREG antigens (B7 and B40 in particular). The work is continued in multiplex families with ankylosing spondylitis. Patients positive for B27 have also been tested for the serological variants of this allele. At least 6 variants of B27 have been described serologically. In the continued study, one dimensional

IEF gel electrophoresis will be carried out in B27 positive patients to identify the electrophoretic variants of B27 in Indian patients and their possible association, if any with the SSA sub-groups.

HLA-haplotype associations in insulin dependent diabetes mellitus: (Anat, Endocrin)

Previous studies carried out by us have conclusively shown a strong association of HLA-DR3 in Indian patients with insulin dependent diabetes mellitus. The present study was conducted to find if the DR3 existed on a specific haplotype in IDDM. Data on 10 multiplex families indicates an overwhelming majority of B21-DR3 positivity in the Indian patients as compared to B8-DR3 reported in their Western counterparts.

Ir genes in pulmonary tuberculosis: (Anat, Ped)

The genetic control of immune responsiveness in pulmonary tuberculosis has been investigated with a view to identify the products of susceptibility genes in this disease. The existence of immune suppression (Is) and the immune response (Ir) gene effect in multiple case pulmonary tuberculosis families has been analysed by correlating high or low responder status of the sibs with the HLA haplotype segregation pattern. In 130 random pulmonary tuberculosis patients, HLA-DR2 was found increased only in the Mantoux positive patients as compared with 40 healthy contacts from the same ethnic background. The role of T cells, B cells and their subsets as well as macrophages in the pathogenesis of pulmonary tuberculosis are also being ascertained.

Molecular basis of HLA-DR2 association in mycobacterial disease: (Anat, Ped)

Molecular basis of association with two mycobacterial diseases viz. pulmonary tuberculosis

(PTB) and tuberculoid leprosy (TT) has been studied. Peripheral blood lymphocytes obtained from 89 patients with TT leprosy and 56 patients with PTB have been tested for HLA class I and class II antigens. HLA-DR2 occurred in 60% of the TT leprosy patients and 58% of the PTB patients. In addition, HLA-DQW1 was present in 73% of the leprosy patients. DNA obtained from the granulocytes of HLA-DR2 positive leprosy patients and healthy controls was digested with restriction endonucleases Bam H1 and Taq 1, and probed with DQA and DQB probes. The results revealed atleast two molecular subtypes of DR2 identified as DR2 (DW2) and characterized by a Taq 1 3.0 kb DQB fragment. This fragment was absent in the other DR2 subtype i.e. DR2 (DW12). This subtype was characterized by a Taq 1 6.8 kb DQA fragment. Further studies are in progress.

Restoration of orbital defects following cancer surgery (Dent. Surg., Otorhino, RPC)

Work on the restoration of orbital defects following traumatic injuries and cancer surgery using indigenously available hot cure MMA is continuing. The orbital prosthesis is readily accepted by the patients and thereby improves the morale of the person who is otherwise depressed because of facial disfigurement

Evaluation of factors predisposing to arterial thrombosis in coronary artery disease (CTC, Hematol)

Blood samples from patients of stable angina (10), unstable angina (5) and acute myocardial infarction (5) have been collected alongwith 15 controls (age and sex matched). Screening coagulation profile (APTT, PPT) and platelet counts are normal in all patients. Platelet aggregation done on 6 patients of stable angina, not on dispirin or metaprolol was normal in 5 and reduced in 1 patient. Radio immunoassay for platelet factor 4 has been carried out. The results are under analysis. Laurell's immuno electrophoresis for anti-thrombin III, alpha-1 anti-trypsin and alpha-2 macroglobulin is being carried out.

T and B cell marker profile in haemophiliacs. (Hematol, Med.)

This study is continuing and has included the HIV status of patients. Of the 98 haemophiliacs screened so far, 8 have tested positive for HIV. Pan T cells constitute 38.0 to 70.5 percent, T helper cells 25.5 to 56.6%, T suppresser cells 14.5 to 43.8% and B cells 5.0 to 27.4%.

Prevalence of microalbuminuria in Indian diabetics & its correlation with diabetic retinopathy. (Endocrin, Neph, RPC)

This project has been started to define diabetic nephropathy from silent stage or incipient diabetic nephropathy, in an attempt to predict the high risk diabetic population who would develop nephropathy in future. Thus, these patients can be tackled for possible prevention of nephropathy.

Immuno phenotyping, histologic and clinical correlation in acute renal allograft rejection. (Anat, Neph, path)

Presently study is on to find out the correlation between histocompatibility, graft histology and types of acute rejections in our renal transplant patients. This is a combination of retrospective and prospective study. Preliminary results indicate the correlation is nearly 60 percent.

Evaluation of direct gas liquid chromatography of CSF in rapid diagnosis of non acid fast bacterial meningitis: (Microbiol., Rep. Biol)

Thirty CSF samples from patients diagnosed clinically as meningitis were examined by smear, culture, latex agglutination and 16 samples by direct gasliquid chromatography for nonvolatile fatty acids. CSF from 11 out of 16 CSF samples showed lactic acid peaks. 8 CSF Samples from uninfected controls tested were negative for lactic acid. Evaluation of the GLC

analysis for rapid diagnosis of meningitis is being done.

Immunological study of bronchopulmonary Aspergillosis:
(Med., Microbiol)

A total of 9 patients have been investigated so far. From 3 patients *Aspergillus fumigatus* was isolated and one patient antibody was positive.

Serodiagnosis of Chorioretinitis: (Microbiol, RPC)

The aim of the project is to delineate the role of toxoplasmosis and amoebiasis in the aetiology of chorioretinitis in India using serodiagnostic tests 33 such cases have been studied and the result is to be evaluated. 33 Chorioretinitis cases have been studied.

Extent and nature of small bowel microflora in children with persistent diarrhoea and the effect of an antibiotic intervention on its clinical outcome: (Paed. Microbiol.) WHO Project.

It has been previously shown that nearly two third of persistent diarrhea patients have aerobic and anaerobic bacterial overgrowth in the upper small intestine. The role of massive dose oral gentamycin is being evaluated in a placebo controlled double blind study.

Acute respiratory infectious (ARI) - A hospital based study on etiology in the urban population of Delhi:
(Paed. Microbiol)

Fifty pediatric patients with acute ARI needing hospitalisation and equal number of matched clinically healthy controls were studied. Nasopharyngeal aspirates (NPA) and blood was cultured for bacterial pathogens from patients. From controls only NPA were cultured. 5 out of 50 blood cultures gave positive results (*Pseudomonas* (1), *Staph.aureus* (2) *Streptococcus pneumoniae* (2)). NPA of 26 controls were

bacteriologically sterile. NPA from patient group yielded Staph-aureus (16), Strep pneumoniae (10), Pseudomonas (5) E.coli (6), haemolytic streptococci (1). 6 cultures were sterile. The virological studies are in progress.

Bacteriology in human biliary tract disease and its correlation with intestinal microflora: (Surg., Microbiol., G.E.)

A total of 254 specimens (gall bladder mucosa, bile from gall bladder, common bile duct and duodenum from 68 patients undergoing biliary tract surgery were cultured for aerobic and anaerobic bacteria. When compared with the culture results of 15 matched controls, significant colonisation was seen in patients with chronic biliary tract disease. The same bacteria were isolated from different sites in most of the patients indicating that the infection was ascending from the gut.

Chloramphenicol alone versus chloramphenicol plus penicillin for pyogenic meningitis in children: (Paed. Microbiol)

CSF from 48 children with meningitis has been cultured. The responsible etiological agents were identified as Pneumococcus (4) Meningococcus (7) and H influenzae (3), Klebsiella (1). No bacterial pathogen could be identified in the remaining 33 patients. 24 patients were treated with chloramphenicol alone (Group A) and a similar number with chloramphenicol + Penicillin (Group B). Treatment failures were observed in 3 and 2 patients in group A & B respectively. 2 deaths occurred in group B but none in group A.

ELISA for detection of IgM antibodies and for diagnosis of acute acquired toxoplasmosis: (Ped., Microbiol)

IHA test on the serum samples have been completed. Due to high background the ELISA test could not be

done. An effort is being made to complete these tests with diagnostic kit.

Effect of ascaris infection on growth of children:
(G.E., Microbiol)

The aim of the project is to find whether ascariasis contributes to malnutrition in children. The specific objectives are to find the effect of periodic anti-ascariasis treatment upon growth of children with ascariasis and find the factors that aggravates the harmful effect, if any, of ascaris infection upon growth. 23 children with ascariasis, 29 with other parasitic infections and 73 children without any parasitic infection have been studied. This results are to be analysed.

The development of a neuropsychological battery for use on Hindi knowing patients (ICMR) (Psychiat, NSC)

A total of 196 items under the scales, motor function (44 items), rhythm (11 items), tactile function (23 items), visual function (11 items), receptive speech (19 items), expressive speech (19 items), writing (14 items), reading (10 items), arithmetic (16 items), memory (15 items) and intellectual process (14 items) were selected and constructed besides a 20 item handedness inventory. Test materials for items included in the battery were also prepared. Two pilot studies each comprising of normal control patients and brain damaged subjects could be carried out and the item analysis procedures were followed. Data collection for various types of reliability studies and validity study is in progress.

Mental disorders in rural school children (ICMR) (Psychiat, Comm. Med.).

The objective of the study is to identify mental disorders in school children with the help of the class teachers in rural area. For this, teacher's knowledge,

attitude and practice (KAP) on mental disorders in children is assessed and then orientation programme is given for identification of mental disorders in the school children. With the help of Children's behaviour questionnaire (Rutter), each child is screened by the teacher. So far 270 children have been examined by the school teachers, of which 90(35%) children were found to be at high risk.

Investigations on oral preneoplastic lesions, squamous cell carcinomas and cervical node metastasis. (Biophy, Otorhino, Path)

Human oral cancer samples and preneoplastic oral lesions are studied for assessment of tumor grade, progression and state of differentiation by structural studies with electron microscopy, immune electron microscopy, and identification of proteins by electrophoresis in conjunction with histological diagnosis and clinical findings. Information on all the parameters is integrated for a comprehensive picture as an aid to differential diagnosis and therapy. This includes a follow up study over a period of 3 years.

Studies on trabecular meshwork in open angle glaucoma (Biophy., R.P.C.)

The involvement of trabecular meshwork in the etiology of open angle glaucoma is being investigated by correlating electron microscopy with clinical findings. Subcellular components that increase resistance to outflow of aqueous into Schlemm's canal have been defined. Effects of high intraocular pressure on trabecular endothelial cells are being investigated. Mechanisms involved are being elucidated on the basis of biochemical and immunological data. Three cases have been studied so far.

Power spectrum analysis of orthogonal lead ECG in patients with ventricular tachyarrhythmias (Biophy, CTC.)

The aim of the project is to identify patients prone to ventricular tachyarrhythmias from the power spectrum of terminal QRS and ST segment potentials . Our preliminary results on the z-lead power spectrum indicate that patients with sustained VT contain a greater proportion of frequency components in the range of 20-50 Hz as compared to patients without VT.

Mathematical modelling of insulin kinetics
(Biophys, Med.)

A mathematical model for insulin kinetics, comprising of a set of 4 nonlinear, coupled differential equation has been developed . Numerical simulations based on the model have been found to be consistent with endocrinal and metabolic profiles of normal controls, as well as of patients with IDDM.

A comparative study of the rate of urological complications of the conventional intravesical and the recent extravesical techniques of ureteroneocystostomy in renal transplantation (Surg, Nuc Med.)

The technique of ureteroneocystostomy has a direct bearing on the rate of urological complications like VUJ obstruction, urine leak and VU reflux. A prospective study was undertaken to determine the incidence of these complications (in ten sets of renal transplant patients who had undergone the intravesical and the extravesical techniques of uretroneocystostomy respectively) by Tc-99m DTPA renal dynamic and DRCG-UFMT studies. The overall incidence of V.U. reflux in these patients was found to be 4%. Comparatively the VUR was found to be slightly higher in patient with extravesical neocystostomy. Interestingly enough there were three patients with obstruction at the VUJ and all of them had the conventional intravesical ureteroneocystostomies. The results are being analysed.

Radiolabelled antimyosin monoclonal antibodies in the detection of acute experimental myocardial infarction (Nuc.Med., Pharmacol)

The objectives of the project is to utilize specific monoclonal antibodies against the principal protein of the myocytes i.e. myosin which is exposed to the extracellular fluids after disruption of the cell membrane and to perform radioimmunoscinigraphy to identify acute myocardial infarction in canine models under varying experimental conditions. 14 open chest anesthetised dogs were subjected to left anterior descending artery occlusion and antimyosin antibodies labelled with I-125,/or I-131 were injected after 3 hours of occlusion, followed by 90 minutes of reperfusion and the dogs were sacrificed. Identification of acute myocardial infarction was done by histochemical staining with TTC, Immunohistochemistry by peroxidase staining and scintigraphy of thin and thick slices of heart. Kinetics of monoclonal antibodies was studied by obtaining serial blood samples; and attempts to quantitate myocardial infarct size are going on.

Role of dobutamine in the evaluation of patients with coronary artery disease (CTC, Nuc. Med.)

Dobutamine, a direct acting inotropic agent whose primary activity results from stimulation of cardiac adrenergic receptors, produces, hypertensive, vasodilator effects and results in increase in stroke volume, cardiac output, and decreases ventricular filling pressures, total systemic and pulmonary pressures. It is being utilized to demonstrate changes in the left ventricular haemodynamics and production of regional wall motion abnormalities. Similar changes occur in patients with Ischemia and coronary artery disease after physical stress. 15 patients with proven coronary artery disease by contrast angiography were subjected to exercise radionuclide ventriculography (Ex. RNV) and intravenous infusion of dobutamine (dissolved in normal saline) was commenced after obtaining rest and peak stress RNV. Significant number

of patients with multivessel disease have demonstrated fall in left ventricular ejection fraction from its resting value and in addition have demonstrated new regional wall motion abnormalities.

Detection of acute rheumatic carditis by In-111 antimyosin monoclonal antibodies and Gallium-67 (CTC, Nuc. Med.)

19 patients with unequivocal clinical evidence of acute rheumatic carditis were subjected to In-111 labelled antimyosin scan (N=14) and Ga-67 (n=5) within 2-3 days of right ventricular biopsy. In 8 cases proven by biopsy In-111 scan were positive; in 3 cases no evidence of carditis was seen by RV biopsy and In-111 MAb scan also did not show a positive scan. In 3 cases (2 with mild focal myocarditis and one patient on steroid) biopsy was positive and scans were negative. 5 patients were subjected to Ga-67 scan at 24, 48 hours post injection. Results are under completion.

Identification of coronary artery disease in the presence of left bundle branch block by exercise radionuclide ventriculography (CTC, Nuc. Med.)

Significant number of patients with baseline rest electrocardiographic abnormalities may have associated coronary artery disease. Exercise electrocardiography has limited value in these cases and attempt to identify the presence of underlying CAD is being made by utilizing exercise radionuclide technique (Ex RNV). 10 patients with LBBB underwent coronary angiography and exercise RNV. 2 patients with single vessel disease. 3 patients with double and 2 patients with tripple vessel disease had shown a positive Ex. RNV. All these 3 patients had myocardial dysfunction in the form of elevated end diastolic pressure, reduced left ventricular function and regional wall motion abnormalities one patient with single vessel disease on coronary angiogram showed a negative Ex. RNV response.

Myocardial dysfunction in perinatal hypoxia (Pediatr. CTC and Biochem)

Perinatal hypoxia leads to multisystem dysfunction. Myocardial ischemia due to birth asphyxia can lead to valvular regurgitation, congestive heart failure, shock and arrhythmias in the neonates. This study involves evaluation of term asphyxiated babies by ECG, X-ray chest, echocardiography and creatine phosphokinase levels in the immediate postnatal period.

Sister chromatid exchange (SCE) studies in repeated abortions (Pediatr and Ob & Gyn)

Repeated abortions may be due to mutagen induced genetic damage. Seventeen couples with recurrent abortions and 25 controls were studied for the spontaneous and mutagen induced SCE. The results are under analysis.

Drug level monitoring of antitubercular drugs (Pediatr. and Pharmacol)

The drug monitoring of rifampicin and isoniazid by microbiological and fluorimetric method respectively at 1, 2, 3, 4, 8 & 24 hours in various types of childhood tuberculosis showed mean, rifampicin levels ranging from 0.26 to 0.40 ug/ml at 24 hrs. The corresponding peak levels at 2 hr. were in the range of 3.38 to 4.41 ug/ml. The trough (24 hr.) and peak (1 hr) levels for isoniazid were in the range of 0.21 to 0.65 ug/ml and 4.11 to 8.17 ug/ml respectively. The trough levels achieved in both the drugs are much above the minimum inhibitory concentration. Monitoring of drug levels by high performance liquid chromatography has been set. By this method metabolites do not interfere and can be quantitated along with the parent drug.

Osseous development at adolescence (Pediatr and Rad Diag)

A cross sectional study on 500 children (9)17 yrs) from low and middle socioeconomic group is being conducted. Tanner's decimal calender system has been used to assess the chronological age of the children. X)rays of left hand were taken by a specialised technique. Bones of hand and wrist were rated and scored individually and three maturity scores were obtained by 13 RUS, 7 carpal and 20 TW2 bone scores. Further, 20 bone, RUS bone and carpal bone ages were obtained. Results of 200 children in the age group of 9)14 years showed that 70.5% children were below 50th percentile of either score, majority (58.5%) being at 3rd percentile. Only 14.5% children were at 50th percentile and an equally small percentage (15%) were above 50th percentile. It indicates that rate of skeletal maturity in the younger adolescent group is slower than their western counterparts.

Infections in leukemias (Pediater and Microbiol)

Forty five febrile episodes in 39 children with acute lymphocytic leukemia have been investigated to determine the cause of fever. Their age ranged between 5 months to 10 years. The preliminary results indicate that the Gram positive organisms are more often responsible for infection. Organisms isolated in these immunocompromised children included Staphy aureus (9), Staphy albus (7), Colstridium spores (3) and Streptococci (3). while Gram negative organisms isolated included Klebsiella (4), Pseudomonas aeruginosa (3), E. Coli (3), Acinetobacter spores (3) and Enterobactor spores (3).

Non Hodgkin lymphoma (Pediater and Path)

Fifty one children with Non Hodgkin lymphoma have been analysed. They presented with lymph node enlargement (51%), abdominal mass (51%) and fever (43.2%). Hepatomegaly and splenomegaly was seen in 43.2 and 33.3 percent of cases. NHL originated predominantly from abdominal viscera (47%), mediastinum (17.6%), cervical lymphnodes (17.6%) and jaw (15.7%).

Histologically NHL was predominantly that of Burkitt's (25%), poorly differentiated lymphocytic (22.5%), diffuse lymphoblastic (17.5%) and differentiated lymphocytic (7.5%). Seventy two percent of our cases presented in advanced stage III as per Saint Jude's staging. Complete remission was achieved in 41% of patients following CVP regime.

Thalassemia major studies (Pediatr, Hematol, and CTC)

Forty seven cases with thalassemia major, who have been regularly transfused at AIIMS have been investigated for growth and development, hepatitis antigen, cardiac and liver dysfunction. Preliminary results revealed that majority of these children are undernourished, (grade III & IV PEM in 81%) and growth retarded (43%). Hepatitis B antigen was positive in 5% of cases. Varying degree of cardiac dysfunction was seen in 85 percent. Serum iron and serum ferritin levels were significantly higher in these cases.

Characterisation of neonatal RV-AIIMS strain (Pediat., Microbiol)

Hospital born babies at AIIMS experience rotavirus infection without associated symptoms. Preliminary studies show that most neonatal RV strains isolated belong to serotype 3. The gene 9 and 4 of the AIIMS rotavirus strain is being characterised.

Oligonucleotide gene probes for detection of toxigenic E. coli directly in fecal smears (Pediat., Microbiol.)

Diarrheal stools from 86 Indian children were examined for the presence of entero toxigenic Escherichia coli (ETEC) by DNA hybridisation on bacterial colonies as well as directly on fecal smears. Colony hybridization showed that 8 samples contained ETEC and these were correctly identified by stool smear hybridization. The remaining 5 specimens produced both ETEC and non entero)toxigenic colonies and these were

all negative by the stool smear hybridization technique. Further methodological improvements are being attempted.

Evaluation of growth hormone profile in children with proportionate short stature (Pediatr and Endocrinol)

A prospective study was conducted over a period of 18 months to evaluate the incidence of growth hormone deficiency (GHD) using high dose clonidine challenge and insulin hypoglycemia test. GHD accounted for 25% of proportionate short stature. These children had severe growth retardation with a lag of 4.8 ± 1.1 yrs. Typical features of GHD were present in only one patient. High dose clonidine was found to be a better stimulus of growth hormone release as compared to insulin hypoglycemia test. Adverse effects were more serious with insulin induced hypoglycemia. Low dose clonidine test was devoid of any clinically relevant side effects but was associated with a large number of false positive subnormal tests (sensitivity of 60%).

Experience with HCG in the management of undescended testes in children (Pediatr. and Pediatr Surg)

A clinical trial of HCG therapy in 78 selected prepubertal cryptorchids (40 unilateral and 38 bilateral) having a total of 116 undescended gonads was conducted. Good response was observed in only those gonads which were located at inguinal canal, external ring and suprascrotal position irrespective of its being left or right testis. Children at an older age group responded better than the very young though this was not statistically significant. There was no appreciable response in any of the high intrabdominal testes ($p > 0.001$). Fifty percent of complete responders in the unilateral group showed retraction within 6 months and required surgery. Under the effect of HCG, it was feasible to bring the testis into the scrotum surgically without much tension.

Modulation of cell mediated immune response by complement, C3 and C₃b in leprosy (Biochem, CTC)

The effect of C3 and its fragments, C₃b in vitro on cell mediated immune response (CMI) was³ studied by leukocyte migration inhibition test (LMT), using leukocytes from leprosy patients. M. leprae and tetanus toxoid were employed as antigens. In multibacillary patients, the migration inhibition caused by M. leprae was significantly higher than that with M. leprae or C3 alone. However, the effect was not significant in case of paucibacillary patients. Similar observations were made using tetanus toxoid and C3. The effect of M. leprae plus C₃b on migration inhibition was not significant either for multibacillary or paucibacillary patients. The results suggest a positive modulation of CMI by C3 in multibacillary leprosy patients.

Transethmoidal optic nerve decompression in post traumatic visual loss: (Otorhino, NSC)

Patients with immediate onset or delayed visual loss following closed head injury were treated initially with conservative therapy consisting of high dose corticosteroids and vasodilators. Patients showing unsatisfactory improvement after 6 weeks of conservative treatment were subjected to transethmoidal optic nerve decompression. They were then followed up at one and 3 months. Visual improvement in terms of visual acuity, visual field and visual evoked responses were evaluated.

13 patients have been operated upon. 7 patients had incomplete visual loss of whom six have shown definite improvement of visual acuity and fields. None of the 6 patients who had total loss of vision pre-operatively improved. One patient developed post operative meningitis but was successfully treated.

Prophylactic antibiotics in head and neck cancer surgery. (Otorhino, Microbiol)

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Prophylactic antibiotics in head and neck cancer surgery. (Otorhino, Microbiol)

100 cases undergoing major head and neck surgery/ were studied prospectively. The patients were divided into 4 groups according to the combination of antibiotics received and duration of administration.

The 4 groups include (a) Ampicillin and Garamycin for a duration of 5 days and (b) 10 days. (c) Cephixin and Metrogyl combination for 10 days and lastly (d) a combination of Ampicillin, Garamycin and Metrogyl combination for 10 days.

So far, 68 patients have been studied. Post-operative complications such as wound breakdown, pharyngocutaneous fistula, etc have been recorded. Culture and sensitivity has been obtained to determine the aerobic and anaerobic organisms from infected patients. At present, there are 5 cases with post-operative infection in the Ampicillin and Garamycin group given for 5 days and 10 days. In the other 2 groups, there are 3 cases of post-operative wound infection.

Role of CT scan in endolymphatic sac surgery: (Otorhino, Rad. Diag)

The aim of the project was to study the bony drilled tunnel for endolymphatic sac decompression and revascularization on CT scan, and to determine its relation to posterior semicircular canal, jugular bulb, vestibular aqueduct and facial nerve as well as to find out if there is bony regeneration in the tunnel.

14 case of endolymphatic surgery have been done. All had postop CT scan. All post operative CT scans showed the tunnel leading to sac region. Similarly, relation to other structures were clearly defined. On follow up CT scan no evidence of bone regeneration has been observed so far.

Role of combined therapy of irradiation and surgery in advanced cancers of the head and neck. (Otorhino, IRCH)

It is realised that results of radiotherapy or surgery alone in treatment of stage III and IV head and neck cancers are far from satisfactory. The present study is being carried out since 1984 to assess the role of planned combined therapy in advanced but resectable lesions. 252 patients thus treated (1984-86) are available for follow up ranging more than 2 years. The pattern of failures such as at local or regional sites, distant metastasis or second primary cancers have been analysed in detail. There is clear suggestion that there is reduction in the failure rates following combined therapy as compared to the group of patients which have been treated with surgery or radiotherapy alone.

Effect of destruction of catecholamine fibres in the medial preoptic area on sleep wakefulness in rats.
(Anat, Physio)

Administration of 6 - hydroxydopamine (6 OHDA) causes degeneration of catecholamine nerve terminals, whereas administration of the same drug, after pretreatment with desmethyl imipramine (DMI), produces selective destruction of dopamine fibers. It was earlier reported that the rats showed a tendency to increase quiet waking period after 6 OHDA treatment. It was later shown that the same trend is obtained after pre treatment with DMI (before 6 OHDA administration). These animals showed a slight increase in paradoxical sleep also.

Performance of aphasic subjects on stimulus discrimination tasks as a function of task difficulty
(NSC, Physiol)

Aphasic subjects and controls were tested for long latency evoked potentials using stimuli that consisted of checker board pattern reversals. The potentials from patients, when averaged, suggest stimulus inattention compared to control. The patients also had confirmed lesions in the anterior speech areas as per their CT scans. These results are in keeping with the notion that anterior aphasics perform poorly on

difficult verbal tasks since such tasks demand more stimulus attention than the easy tasks.

Doppler blood flow velocity waveform in the fetal descending thoracic aorta (Ob & Gyn, Rad.Diag.)

Pregnancy induced hypertension poses a great risk to the life of mother and foetus. Studies with Doppler ultrasound have revealed decreased foetal blood flow in such pregnancies. Dopplerultrasound study for peak velocity, and diastolic velocity, pulsatile index and resistance index in 25 normal and 10 hypertensive pregnancies have been carried out. Results showed that end diastolic velocity was significantly reduced in foetuses where intrauterine growth retardation developed.

Thyroid dysfunction in pregnancy (Endocrin, Ob & Gyn)

Thyroid function was evaluated in post partum women, to find out the prevalance and duration of thyroid dysfunction following child birth. In women with no obvious thyroid disease, serial estimation of T3, T4 and TSH have been carried out in 54 women.

New treatment protocols for hypertensive disorders of pregnancy (CTC, Ob & Gyn, Pediat)

Thirty eight women with hypertension in pregnancy have been randomly allocated to four drug treatment groups of labetolol, aspirin, clonidine and methyldopa. Efficacy and clinical outcome of foetus and mother have been evaluated with these four drug regimen. The preliminary results indicate that labetolol is a safe drug with a rapid onset of action and fewer side effects, whereas aspirin has given better results in cases associated with intrauterine growth retardation (I.U.G.R.). In low dose it is a safe antihypertensive drug during pregnancy. Clonidine due to its side effects like headache, dizziness and depression, is not as efficient and safe as methyldopa.

A new approach to arrest preterm labour (Ob & Gyn, Pediat)

Calcium channel blockers were evaluated in the management of preterm labour in patients admitted with preterm labour. They were treated with oral nifedipine. Control cases were treated with intravenous isoxsuprine hydrochloride. Labour could be postponed by at least 48 hours in all the 14 patients treated with oral nifedipine compared to 75% success rate with intravenous isoxsuprine.

A new dimension: Assessment of tubal status by Decker's starch test, technitium tubal scan (Ob & Gyn, Nuc.Med.)

Blocked fallopian tubes account for infertility in 25-35% women. Decker's starch test, Methylene blue dye test at laparotomy and technitium tubal scan are being evaluated in infertility cases to ascertain tubal patency. So far 20 women have been evaluated for tubal patency by these tests. Results with these tests are comparable and no complications have been noted.

Screening of cervical scrapes for human papilloma virus (HPV) by DNA in situ hybridization (Ob & Gyn, Microbiol)

The incidence of HPV was studied in 500 cases by DNA dot blot technique of hybridization. The incidence of dysplasia is increased with parity, with age of consumation < 18 years, in women with IUCD, tubal ligation and whose husbands have undergone vasectomy. Nirodh probably has a protective effect against HPV infection. The incidence of HPV positivity in the normal population was 3.6%. None of the specimens were positive for HPV 16/18, 31/35. HPV 6/11 infection was found to be more common in the lower socio economic groups.

Chorion villus sampling (CVS) A new step towards early fetal diagnosis (Obst. & Gyn., Pediat)

A large number of patients at risk of carrying a fetus with genetic disorder attend the high risk pregnancy clinic. First trimester transcervical CVS was done in 50 patients and 2nd trimester CVS was done in 15 patients vide the transabdominal route. The procedure was established at the centre and was found to be a safe and sensitive OPD procedure of great potential in early prenatal diagnosis of fetal disorders. The method of direct karyotyping was standardized at the genetic laboratory and is a promising step forward.

Endocrin disorders of pregnancy: Glycosylated serum albumin and GAB: New adjuncts to manage gestational diabetes and insulin dependent diabetes with pregnancy (Ob.& Gyn., Endocrin)

Glycosylated serum albumin and GHB levels were serially estimated in 42 pregnant patients (15 normal, 13 complicated, 14 gestational diabetics and 4 insulin dependent diabetics) to establish normal levels and to correlate GSA and GHb levels with blood glucose levels, perinatal morbidity and fetal birth weight and also with each other in normal and complicated pregnancies. These simple tests have been found to be useful indicators of long term glycemic control, predictors of macrosomia, perinatal morbidity and risk of congenital abnormality. GSA estimation are strongly recommended in the monitoring of gestational diabetes and insulin dependant diabetic pregnancies.

A new dimension for detection, diagnosis and management of fetal disorders (Ob & Gyn , Pediat)

Percutaneous ultrasound guided fetal umbilical cord blood sampling was done in 50 patients at 15-20 weeks of pregnancy by the percutaneous ultrasound guided technique for prenatal detection of genetic disorders, for the first time in India.

It has been found to be a safe outpatient

procedure, invaluable in the management of rhesus isoimmunization, non-immune hydrops, congenital malformations and intra-uterine growth retardation ; for direct access to fetal blood for various parameters and karyotyping and for intravascular blood transfusion. Establishment of this procedure has opened a vast new field of fetal medicine.

Centre for research on RF-RHD (Anat, Biostat, CTC, Med, Path)

The centre was established in 1984 for conducting indepth multidisciplinary research on microbiological, immunological, immunopathological and immunogenetic mechanisms underlying RF-RHD and to identify the clinical and laboratory, investigative profiles that will enable an accurate diagnosis of RF and it's manifestations as well as fostering better techniques of management & prevention. The brief highlights of the study are as follows:

i) The immunogenetic studies have suggested HLA DR3, DQW1 and B cell alloantigen D8/17 as the susceptibility factors. ii) The immunological studies have shown an evidence of immunodysregulation due to selective deficiency of 2H4 + T helper lymphocytes. The cellular and humoral immune responses resultantly were augmented as exemplified by exaggerated CD8 + Leu 19+ cytotoxic cells and CD5+ autoantibody producing B lymphocytes by flow cytometry. iii) Western blotting studies have isolated 43 & 50 kDa specific streptomyocarditogenic antigens which appear to have unique diagnostic , prognostic and pathogenetic implications, and iv) Newer diagnostic modalities have been identified for the identification of rheumatic myocarditis viz induction of artificial subcutaneous nodules, endomyocardial biopsies, SDS-PAG electrophoresis and Indium labelled antimyosin antibody nuclear scans.

ICMR multicentric study on community control of RF & RHD

This study, which aimed at evaluating the feasibility of utilizing the existing primary health care infrastructure in implementing programmes of primary as well as secondary prophylaxis of rheumatic fever, has concluded its field study and data collection components. The final results of data analysis are expected to be available by July 1989. Based on the results of this study, a district programme for control of RF & RHD has been developed and the departments of Community Medicine and Cardiology, AIIMS, will be involved in implementing this programme.

Functional and molecular mechanisms of myocardium in experimental chronic diabetes (CTC, Pharmacol)

Initial studies have demonstrated that alloxan at a dose of 100-110 mg/kg administered intravenously over a period of 4-7 minutes appears to induce diabetes mellitus, in rabbits, which lasts for a fairly long period provided necessary care is taken about marked immediate hypoglycemia and delayed metabolic complications of hyperglycemia, eg. Ketoacidosis. Investigations into the functional and metabolic consequences are in progress.

Effect of verapamil on coronary reperfusion induced myocardial injury in canine model (CTC, Pharmacol)

Verapamil was administered (0.1 mg/kg intravenously) during brief ischemic period (20 min) in a myocardial ischemia-reperfusion model in dog. Verapamil was found to be significantly effective in terms of biochemical parameters, like ATP & CP. It also had significant effect in preventing reperfusion induced ventricular arrhythmias. Mortality due to fatal ventricular fibrillation was also significantly reduced when verapamil was administered. Regarding haemodynamic parameters, like mean arterial pressure, heart rate, left ventricular pressure or maximal rate of change of LVP (dp/dt) and left ventricular end-diastolic pressure verapamil showed initial recovery during early few minutes following reperfusion.

Effects of propranolol on coronary reperfusion induced myocardial injury in canine model (CTC, Pharmacol)

Regional myocardial ischemia was induced by clamping the left anterior descending artery for 20 minutes thus causing reperfusion. Propranolol was administered (1mg/kg slow i.v.) immediately before reperfusion. The incidence of premature ventricular complexes (PVCS), ventricular tachycardia and ventricular fibrillation (VF) following reperfusion was significantly reduced following propranolol administration. After one hour of reperfusion following 20 minutes of ischemia, the ATP levels, but not that of CP, were significantly higher in propranolol treated animals. The drug was however, not effective in improving haemodynamic parameters.

Effect of vitamin B6 deficiency on complement proteins and immunity (Biochem, CTC)

A significant decrease in the invitro hemolytic activity of complement (CH 50) and C3 levels was found in the Vit B deficient rats. The study indicates that in addition to the impaired humoral and cell immunity in pyridoxine deficiency, hypocomplementaemia may also contribute to the immune dysfunction. Pyridoxine deficiency may contribute to and aggravate the hypocomplementaemia seen in cases of protein energy malnutrition.

Modulation of cell mediated immune response by complement C3 and C3b in leprosy (Biochem, CTC).

The effect of C3 and its fragment, C3b in vitro on cell mediated immune response (CMIR) was studied by leukocyte migration inhibition (LMI) test using leukocytes from leprosy patients. M leprae and tetanus toxoid were employed as antigens. In case of multibacillary patients, the migration inhibition caused by M leprae plus C3 was significantly (p 0.05)

higher than that with *M leprae* or C3 alone. However the effect was not significant in case of paucibacillary patients. Similar observations were made using Tetanus toxoid and C3. The effect of *M leprae* plus C3b on migration inhibition was not statistically significant either for multibacillary or paucibacillary patients. The results suggest a positive modulation of CMIR by C3 in multibacillary leprosy patients.

Humoral immune response in pulmonary tuberculosis (PT) (Biochem, CTC)

Complement profile and specific antibody response were studied in pulmonary tuberculosis patients. In patients with active disease, CH50 (28.39 ± 1.25 Units/dl), C3 (169.47 ± 6.05 mg/dl) and C3d (0.98 ± 0.12 mg/dl) levels were found to be higher when compared to normal controls. (15.95 ± 0.56 Units/dl, 109.76 ± 3.93 mg/dl and 0.42 ± 0.07 mg/dl respectively). Specific antibodies in the IgG class (EIAOD = 0.498 ± 0.055) but not in the IgM class (EIAOD = 0.105 ± 0.010) were higher in patients than those in normals (IgGOD = 0.079 ± 0.007 and IgMOD = 0.077 ± 0.010). The levels of all these parameters fell after chemotherapy and approached to control values. The work is in progress to evaluate these parameters in diagnosis and follow up.

Studies pertaining to CRI receptors in immune complex diseases: acquired deficiency of C3b receptor (CRI) in acute glomerulo nephritis (Biochem, CTC)

Human C3b receptor (CEI) was quantitated on the erythrocytes of normal North Indian subjects and patients of glomerulo nephritis. A trimodal distribution of CRI controlled by two polymorphic co-dominant alleles L (Low CRI) and H (High CRI) with gene frequencies of 0.52 and 0.48 respectively was observed. Hence frequencies of CRI in this population were 24% (LL, low), 66% (LH, intermediate) and 20% (HH, high). However most of the patients with acute glomerulonephritis (AGN) had CRI level falling in the

LL genotype. A significant difference was found in CRI levels of AGN when compared to normals, chronic glomerulonephritis (CGN) and recovering AGN. CRI level in CGN did not differ significantly either with normals or with recovering AGN. Further an increased CRI level on remission was observed in AGN but not in CGN. The CRI level in the patients group showed an inverse relationship with circulating immune complex (CIC) and a direct correlation with total hemolytic complement (CH50) levels. The above mentioned evidences suggest an acquired loss of CRI (not inherited) in AGN.

LP.(a) : The predictor of pre mature atherosclerosis(Biochem,CTC)

Serum samples from hospital based controls and coronary heart disease (CHD) patients were subjected to polycrylamide gel electrophoresis for lipoprotein profile and the LP (a) presence. Significantly large proportion of both male and female (CHD) patients showed the LP(a) presence as compared to controls indicating a strong positive correlation between LP(a) and CHD. The presence of LP(a) is however independent of sex, age and other known factors like LDL/HDL ratio.

A study on the frequency and nature of pre-neoplastic hepatocellular lesions in human and animal livers (CTC, Path)

A total of 45 livers examined at autopsy (accident deaths) have revealed the presence of foci of altered hepatocytes in 14. The significance of these changes is not understood and more cases are to be evaluated to determine their nature and frequency.

Dilated cardiomyopathy in India - Clinical immunological, Virological and morphological markers and role of beta blockers in long term effect on morbidity and mortality; (CTC, Path)

In this ICMR project a total of 20 endomyocardial biopsy (EMB) have been received. These have been evaluated qualitatively and have shown features which suggest dilated cardiomyopathy. A detailed quantitative analysis of this biopsy material is being done.

Histological and immunohistochemical characteristics of acute rheumatic myocarditis in man. A prospective endomyocardial biopsy study. (CTC, Path)

Thirty six EMB in 10 patients of acute rheumatic fever have been performed in an attempt to identify histopathological and immunohistochemical characteristics of rheumatic carditis, evaluate temporal changes during the course of the disease and assess the effects of immunotherapy. Aschoff nodules, histiocytic aggregates and collagen changes suggest the presence of the rheumatic process. Immunohistology provides an evidence of cytotoxicity as the mechanism of carditis. Ongoing myocarditis has been noted even at 12 to 24 weeks after institution of therapy. Detailed evaluation of the latter change is in progress.

Evaluation of natural and artificially induced subcutaneous nodules in acute rheumatic fever. (CTC, Path)

Histopathological and immunohistologic studies are being performed on naturally occurring and artificially induced (autologous buffy coat injection) subcutaneous nodules in acute rheumatic fever. Pathologic characters of 6 natural and 3 artificially induced nodules analysed so far appear to be similar.

Establishment of non-A, non-B (NANB) hepatitis specific B cell clones (G.E. Path).

Transformation of peripheral blood B-lymphocytes was carried out using Epstein Barr virus (EBV). The cells were grown for 6 weeks and cloned in the presence of irradiated human macrophage. They were screened for

anti NANB virus antigens in feces and liver biopsy of acute hepatitis patients. In 17 cases no specific clone has been detected. Further study is in progress.

Acute viral hepatitis : non-A, non-B (NANB) hepatitis in adults and vaccine trial on infants born of HBV carrier women : (Ob. & Gyn, Path, Pediat)

Acute viral hepatitis and its outcome was studied in children and pregnant women. It was found that in pregnant women non-A, non-B hepatitis accounts for more than 80% of acute viral hepatitis although the outcome of this infection is no different from hepatitis A or B. A vaccine trial using both plasma derived and yeast derived recombinant vaccine on infants born to HBV carrier mothers is in progress.

Clinico-pathological analysis of cases of polymyositis and dermatomyositis. (Med, Path)

Histological sections from muscle biopsy specimens of thirty cases of myositis (both polymyositis and dermatomyositis) have already been reviewed with special reference to the degree of inflammation and presence or absence of vasculitis. The histological findings are now being correlated with the clinical presentation, the progression of the disease and the serum CPK levels.

Cell kinetics and vascular changes in human brain tumors : An in-vivo study. (NSC, Path)

The technique of in-vivo labelling of brain tumor cells using Bromodeoxyuridine (BrdU) has been standardized. Till date, 37 patients of various types of brain tumors have been given a 1 hr. intravenous infusion of BrdU, 200 mg/sq.m. at the time of surgery. The excised tumor specimens are being fixed in 70% ethanol, paraffin embedded and sections are being stained by the Avidin-Biotin Conjugate Immunoperoxidase method using anti-BrdU monoclonal antibody. The

labelling index of the tumor cells and endothelial cells has to be counted. The changes in the blood vessels in tumor and peritumoral areas are being examined separately by transmission and scanning electron microscopy.

Cell proliferation kinetic pattern of brain tumors: An in-vitro study. (NSC,Path)

The labelling of tumor cells in culture system using BrdU and 3HTdR has been standardized. Last year, GFAP localization in cultured tumor cells had been standardized. Various types of brain tumors are being grown in culture for a period of about a month. Coverslips are being introduced into the culture flasks and these are being harvested at regular intervals. The labelling index and GFAP expression are being studied at weekly intervals. These are being correlated with the pattern of tumor growth in vitro. Electron microscopy is being done on some cases. Studies in astrocytomas have revealed that in low grade tumors, there is initially a fall in GFAP content of the tumor cells followed by a recovery, whereas in high grade tumors, there is progressive fall of GFAP in tumor cells with ageing of the culture. More cases are being evaluated to confirm these observations. Studies on meningoma show a very high labelling index of tumor cells in culture in contrast to the low LI of these tumors in our 'in vivo' studies. The reason for the discrepancy remains unresolved.

Study of juvenile motor neuron disease. (NSC,Path)

The technique of enzyme histochemistry for myosin ATPase and NADH-TR has been standardized on snap frozen muscle biopsies. These are being done on cases of juvenile and adult motor neuron disease. The results have to be analyzed and correlated with clinical parameters after more cases have been studied.

Epithelial mucins in various disorders of gastrointestinal tract: (GE,Path)

In this study designed to identify premalignant alterations in cases of ulcerative colitis and some gastric disorders on the basis of the alterations induced in the type of mucins elaborated by different regions of the gastrointestinal tract, staining with high iron diamine with Alcian blue has been standardised and is now being carried out. This staining along with lectin binding and CEA pattern would also be carried out on cases of carcinoma of stomach and colon to obtain a correlation between the staining pattern and prognosis.

Gastropathies in portal hypertension: (GE,Path)

Work on this project is continuing. A large number of specimen obtained both at endoscopic biopsy and at surgery are being analysed.

Endoscopic, radionucleotide and histological evaluation of intrathoracic stomach. (Nuc Med, Path, Surg)

In caases of gastric pull-up surgery various gastric functions like emptying time, reflux, acid, composition etc. are being evaluated. Endoscopic biopsies of stomach mucosa are being graded histologically, and the changes correlated with clinical features.

Intestinal biopsy in cases of chronic diarrhoea and malabsorption (Path, Pediat)

Detailed histological analysis of intestinal biopsies in cases of chronic diarrhoea and malabsroption syndrome in children is being done. Biopsies in cases of coeliac disease as well as those of chronic diarrhoea are being studied.

Importance of vascular involvement in the prognosis of ARF in children. (Nephrol, Path)

Many children present in acute renal failure (ARF) without any demonstrable etiologic background. Preliminary renal biopsies have revealed marked vascular involvement as the main feature accounting for ARF and progressive renal impairment. This aspect is being analysed in a critical manner.

Autoantibodies in the diagnosis and pathogenesis of pemphigus vulgaris (Dermat, Path)

Autoantibodies, mainly IgG, have been found to play a role in the causation of pemphigus. The detection of IgG deposits in the intercellular region of the epidermis is being done to diagnose pemphigus. Titres of circulating antibodies is being estimated by indirect immunofluorescence, to determine any correlation between changing titres and disease activity.

Epidemiology of extrahepatic portal venous obstruction (EHO) with specific importance to umbilical sepsis. (GE, Surg)

Two thousand children below 6 years of age have been screened in 4 villages with minimal facilities of hospital delivery. 98% (1960) of the children were delivered by private untrained dais 15% (n=300) had definite evidence of umbilical sepsis persisting for at least a week. 4 out of 2000 had splenomegaly. However none of them had evidence of esophageal varices or evidence of EHO by ultrasound. All children with umbilical sepsis had a normal spleen portal venous system demonstrated by ultrasonography. It seems that prevalence of EHO is extremely low and umbilical sepsis possibly has no role in causing EHO. Children with umbilical sepsis and age & sex matched controls will be followed prospectively for 3 years to document appearance of EHO.

Monoclonal antibodies against enteric NANB virus
(Biotech, GE)

Monoclonal antibodies specific for enteric NANB hepatitis(ENANBH) virus will be raised by immunizing balb/c mice with semipurified ENANBH virus three times over a period of two months. Spleen cells will be harvested and fused with mouse myeloma cells. Hybrid cells will be distributed into 100-400 culture tubes and cells will be grown in RPMI. Grown hybrid cells will be screened for the presence of ENANBH specific antibodies. Six mice have been injected with ENANBH and are being studied.

A pancreatographic study of malnutrition related diabetes (GE, Rad.Diag)

Ten patients with malnutrition related diabetes have been studied by pancreatography. All had fibrocalculus type of pancreatic changes. Comparison with 5 control pancreatograms as also with those of 10 patients with chronic pancreatitis has revealed certain characteristics of this type of malnutrition related diabetes, the most dominant being smooth wide dilatation of the pancreatic ducts with large intraductal calculi.

An endoscopic and histopathological study of carcinoma of the ampulla of Vater. (GE, Path)

Of 32 patients with carcinoma of the ampulla of Vater operated upon, 26 patients had preoperative endoscopy and biopsy. In 22 the gross appearance was clearly abnormal and in 1 patients the biopsy was positive. Five distinct types of endoscopic appearances have been observed. They are being correlated with the histological features.

Prevalence of campylobacter pylori in patients with nonulcer dyspepsia (GE, Microbiol)

In 34 patients with non ulcer dyspepsia (NUD) endoscopic biopsies have been obtained from different parts of the stomach to find out the presence of C.pylori by histopathological examination, urease test and anaerobic bacterial culture. They are at different stages of testing but urease test appears to indicate the presence of C.pylori in about 80% of NUD patients. Data is being gathered from chronic duodenal ulcer patients and normal individuals for comparison.

Peritoneal tuberculosis: bacteriologic and immunologic study (GE, Microbiol)

Twenty one patients having exudative ascites had laparoscopy. In 12 patients the ascites was due to peritoneal tuberculosis, in 5 due to metastatic adenocarcinoma and 3 had hepatic out flow obstruction. The biopsy tissue revealed changes suggestive of tuberculosis in 11 patients. In the remaining patients the diagnosis was confirmed by isolation of Mycobacteria on culture. M tuberculosis was isolated in 4/10 patients where the tissue could be subjected for bacteriology. Tuberculin test was positive in 9 of the 12 cases and leukocyte migration inhibition (positive) was demonstrated in 7/10 DNCB response could be monitored in 8/12. ELISA showed a positive response in 10/12 patients. It was negative in 2 patients who had disseminated tuberculosis. There was a significant difference between tuberculosis and other diseases as well as normal controls.

Virulence of organism causing abdominal tuberculosis (GE., Microbiol)

The virulence could be evaluated in 3 patients of peritoneal tuberculosis and 2 patients of intestinal tuberculosis. The tissue was obtained through laparoscopy or colonoscopy. Four patients (2 peritoneal and 2 intestinal) revealed low virulent organisms. The remaining tissue from the peritoneum revealed highly virulent organisms.

Anterior chemotherapy in locally advanced breast carcinoma: (IRCH, Surg)

Anterior chemotherapy Cyclophosphamide, Adriamycin, 5-FU (CAF) in 35 patients, and Cyclophosphamide, Methotrexate and 5-FU (CMF) in 31 patients was administered to patients with locally advanced breast cancer (T4, No. 3, M0). This was followed by radical radiotherapy if residual tumour was less than 2 cm and surgery if larger. Nine months of adjuvant chemotherapy was given to all. Response rates were similar (CAF 85.7%, CMF 71%) but complete remissions (CR) were more with CAF (25.7%) than CMF (3.2%) Chemotherapy + Radiotherapy achieved CR in 42.8% patients on CAF and 9.7% on CMF. Preliminary results suggest that CAF may achieve higher CR than CMF, permitting breast preservation by radical radiotherapy.

Induction chemotherapy in head and neck cancers (IRCH, Otorhino)

Prospective study was initiated in February, 1985 to study the effect of induction chemotherapy followed by radiotherapy in advanced, technically resectable cancers of larynx and base of tongue. Two chemotherapy regimens were used - Methotrexate alone and a combination of Cisplatinum, Bleomycin and 5-FU. Of the 64 evaluable patients with carcinoma base of tongue, 30 received combination chemotherapy and 34 received methotrexate alone. The response rates to chemotherapy (combination and single) was 63% and 37% respectively. After radical radiotherapy CR was achieved in 57% and 50% of patients on combination chemotherapy and single agent chemotherapy respectively. Of the 38 evaluable patients with carcinoma larynx, 17 received combination chemotherapy and 21 received only methotrexate. There was no CR on these schedules. After radical radiotherapy, CR was achieved in 79% and 64% of patients on combination chemotherapy and single drug chemotherapy respectively. The study period is over, however, patients are being followed up to study the effect of combination treatment on survival.

Brain tumours: (IRCH, NSC)

Thirty two patients each, of malignant brain tumours with residual disease after surgery and radiotherapy were randomized to receive single drug (CCNU only) and combination chemotherapy (Vincristine, CCNU and Procarbazine). Evaluable patients were 23 and 22 in each group respectively. Nine patients (39%) in single drug arm and 10 patients (45%) in combination chemotherapy arm, either showed response and no change in size of tumours. Fourteen (61%) and 12 (55%) in each group showed progressive disease. So far results are not significantly different in 2 arms.

A prospective randomised study of advanced (stage III & IV) carcinoma of larynx to evaluate the role of radiotherapy and surgery Vs. chemotherapy and radiotherapy : (IRCH, Otorhino)

One hundred and sixteen patients have been registered in this study. Alternate patients are being treated by either of the two following regimes namely. a) Preoperative radiotherapy followed by radical surgery. b) Anterior chemotherapy followed by radical radiotherapy. Patients in regime (a) seem to be getting lower failure rate than regime (b).

Preoperative radiotherapy followed by surgery in carcinoma esophagus : (IRCH, Surg)

Ninety five patients have been enrolled. A short course of preoperative radiation is followed by radical surgery. The interim results show a trend toward better results by this modality compared to either radiotherapy or surgery alone.

Immunogenetic studies in systemic lupus erythematosus (SLE) (Anat, Med)

Till now 75 patients with SLE have been studied.

HLA DR4 still gives high relative risk, DR1, B27 appear protective for SLE, B5 predisposes to severe joint pain while B8 is protective against joint pains. DRW52 could be protective against renal disease and, Raynaud's phenomenon may have correlation with A2. HLA-DR3 found with increased frequency in caucasoids occurred in Indian patients with same frequency as in normals. The study indicates there might be heterogeneity in the disease.

In vitro rheumatoid factor (RF) synthesis in genetically predisposed individuals (Anat, Med)

Genetically predisposed persons with RA having the HLA DR4 haplotype were studied for the synthesis of RF in vitro using pokeweed mitogen (PWM), as a stimulant. Optimum synthesis of RF was observed on the 7th day. The work is continuing.

A study of immunological parameters in infective endocarditis (CTC, Med)

28 patients with infective endocarditis have been studied. Clinical features, laboratory parameters and immunological parameters including circulating immune complexes, rheumatoid factor, immunoglobulin profile, complement levels, heart antibodies and ear lobe monocytois were studied serially during the course of hospital stay. Results are being statistically analysed.

Study of lymphocyte subsets and other immunological parameters in rheumatic fever and rheumatic heart disease (RHD) (CTC, Med)

T-cell subsets and B cells were assessed by using APAAP technique. The results showed evidences of disordered immunoregulation in the form of reduced proportion of CD8 + cells with an increased number of CD4 + cells. A marked rise in B cells was observed. Elevated levels of serum immunoglobulins IgG, IgA, IgM

and serum complement levels (C3, C4) and circulating immune complexes (IC) were found in these patients.

Circulating immune complexes (IC) were further characterised by using SDS-PAGE and Western blot in acute rheumatic fever (RF), rheumatic heart disease (RHD), streptococcal pharyngitis and rheumatic arthritis patients and appropriate controls. Consistent bands were identified between patients' IC and various streptococcal cell wall, cell membrane proteins as well as heart tissue antigens. Two cross reactive polypeptide proteins of 43 and 53 Kd molecular weight were consistently observed in IC of patients with RF, streptococcal pharyngitis and rheumatic arthritis but not in RHD patients. The presence of strong cross reactive antibodies against these two polypeptides was confirmed by Western blot using sera from RF patients. Serial follow-up study showed the presence of 43 Kd protein in IC of RF patients suggesting the existence of streptococcal myocarditogenic antigen which was not demonstrated by patients with RHD.

Lupus anticoagulant - clinico-pathological correlates:
(Hemat, Med)

50 patients with systemic lupus erythematosus have been screened for the presence of lupus anticoagulant. Statistical analysis to find out correlation, if any, between clinical manifestations and LAC is under way.

Treatment of progressive systemic sclerosis (PSS) with 5-fluorouracil (Med, Pharmacol)

Fifteen patients with PSS were induced into the trial. Of these, 8 patients have completed 6 months of therapy. Results show that no significant improvement is achieved with this form of treatment.

HLA studies in idiopathic poly/dermatomyositis: (Anat, Med)

An immunogenetic study of 20 patients comprising 10 polymyositis and 10 dermatomyositis did not show any significant deviation from normals. DR3 found significantly increased in other populations did not differ from normals in this small group of patients studied.

Immunogenetic studies in familial rheumatoid arthritis (RA); (Anat, Med)

20 multiplex families of adult onset RA have been studied to determine the segregation of paternal haplotypes among the affected and unaffected sibs. A non-random segregation was observed among affected sibs with eleven sib pairs being HLA identical, seven haplo-identical and 2 being non-identical with the proband ($p < 0.01$). Among the unaffected sibs the segregation of HLA haplotypes was random.

Immunogenetics of autoimmune thyroid diseases in North India (Anat, Endocrin, Med)

Sixty patients with Grave's disease and 10 patients of Hashimoto's thyroiditis have been studied in depth: HLA class I (A,B,C) and class II (DR,DQ) antigens were evaluated. An attempt was made to analyse any association between these antigens and disease occurrence. Specific HLA supratypes in these diseases were also looked for. Results are under analysis.

Pharmacological interventions in neurogenic pulmonary edema : A hemodynamic and biochemical profile (NSC, Pharmacol)

In an already established model of intracranial hypertension in cats the time course of development of pulmonary edema was studied. At 100 mm of Hg ICP at 30 mins, there was no significant change. At 60 and 90 mins, there was progressive and significant increase in extravascular lung water volume. In another set of

experiments, different grades of ICP caused variable decrease in cerebral perfusion pressure. The maximum decrease was observed at 100 mm of Hg. There was no correlation between decrease in cerebral perfusion pressure and extravascular lung water volume. Studies are in progress to elucidate the role of plasma epinephrine and norepinephrine in hemodynamic changes.

Bioavailability of rifampicin, pyrazinamide and isoniazid in patients of tubercular meningitis (NSC, Pharmacol)

Availability of drugs in the biological system specially at a site where it is needed is of significant importance. In tubercular meningitis, it is essential that anti tubercular drugs must reach to CSF in sufficient concentration. The available fixed dose combination of anti tubercular drugs are used in this condition. The method of estimation of rifampicin, isoniazid and pyrazinamide has been standardized and it is being analysed in blood and CSF samples obtained from patients of tubercular meningitis.

Diagnosis of primary aldosteronism in hypertensive patients by measuring serum potassium, plasma renin activity and plasma aldosterone levels (CTC, Endocrin, Pharmacol)

The peripheral plasma renin activity (PRA) has been estimated by radioimmunoassay in 10 normotensive controls and 62 hypertensive patients. PRA values in seven patients fell in lower 15 percentile of the normal range. These patients (PRA <1.5 ng/ml/hg) were subjected to plasma aldosterone estimations and serum potassium measurements. Significantly high plasma aldosterone and low serum potassium levels were observed in 3 patients. The diagnosis of primary aldosteronism in these three patients will be confirmed by abdominal CT scan.

Plasma angiotensin II levels in normal subjects and patients with renovascular and chronic renal parenchymal hypertension (CTC, Endocrin, Nephrol, Pharmacol, Rad. Diag.)

Bioassay of Angiotensin II using rat blood pressure method has been standardized. The reliability criteria of the assay have been ascertained. Immunization of rabbits to prepare angiotensin II antiserum is in progress for establishing Angiotensin II radioimmuno assay in the laboratory.

Estimation of 5-HIAA in CSF of hydrocephalus patients before and after shunt (NSC, Pharmacol)

Estimation of SHIAA is being done in CSF of patients of hydrocephalus before and after shunt surgery. Preliminary results in 12 patients show that there is 32.5 to 89% reduction in post operative CSF-5-HIAA value as compared to preoperative values. A detailed study is being planned.

Serum cortisol response to oral 5-Hydroxytryptophan (5-HTP) in depressive patients (Pharmacol, Psychiat)

In an attempt to find a diagnostic marker as an etiological correlate of major depression, the effect of oral 5-HTP challenge on serum cortisol, urinary 5-HIAA and catecholamines of depressed patients is being studied. Healthy volunteers and patients of minor depression are acting as controls. This 5-HTP challenge test is further being compared with dexamethasone suppression test done on same patients.

Serial section examination of total oesophagectomy (Path, Surg)

The aim is to detect longitudinal spread of oesophageal cancer in the submucous coat, lymphatic vessels and the distance at which it is seen from the margin of section of the tumour. Based on the data, safe proximal margin of section of the oesophageal

tumour will be defined which is unclear in published literature which indicates resection with margin (varying from 3cm to 12 cms and even subtotal oesophagectomy). The relevance of the study will be to prevent anastomotic recurrence avoiding inadequate margin of section and resultant dysphagia thus defeating the very purpose of palliation. Initial results indicate that there is tumour within 6cms from the gross margin of the lesion and hence margin of section should be beyond such levels.

Anterior chemotherapy in squamous cell carcinoma of the oesophagus (IRCH, Surg)

Anterior chemotherapy with Cisplatinum (110 mg/Sq mtr) and Methotrexate (200 mg/Sq mtr) is given for 2 cycles at 3 week's interval. Patients who gave good response are randomized in radiotherapy or surgery while the non-responders are operated and randomized into preoperative short radiotherapy or post-operative radiotherapy. This study indicates that patients who respond to chemotherapy do equally well with radiotherapy or surgery. The results in non-responders are poor and recurrent.

Immunological effects of blood transfusion in patients of carcinoma breast undergoing surgery (Biotech, Surg)

Various clinical studies have shown that pretransplant blood transfusions to the recipient improve prospects of subsequent renal graft survival. Perioperative blood transfusion have been associated with increased recurrence and infections after tumour surgery. These observations suggests that blood transfusion may markedly impair the recipient immunological defence mechanisms. The endeavour in this study will be to investigate operated carcinoma breast patients for evidence of suppression of immunity compared to their pre-operative values. The parameters to be studied will be T cell, Total B cell, T helper lymphocyte, T suppressor lymphocyte counts and T helper to T suppressor cell ratios.

Psychological reactions in patients with breast cancer (Psychiat, Surg)

Study constitutes fifty patients of breast cancer in an age group of 25 to 63 years - mean age $43.72 + 9.023$ years. 36% were found to be depressed with SDSI of more than or equal to 50 in preoperative phase. This increased to 46% in the post operative phase. 10% of the patients were observed to have moderate to extreme depression (SDSI more than or equal to 60) in the pre-operative period and this increased to 28% in post operative period. The difference was significant. No significant association was observed between degree of extra-version or psychoticism and depression.

Forty-seven patients in this group were married. Thirty-eight were house wives and eight teachers. At the end of 3 months after mastectomy 34% of patients were observed to be depressed. Evaluation was done on Zung's self rating depression scale index of more than 60. Prospective study with anti depressant agents is in progress.

Endoscopic sphincterotomy (ES) for the management of common bile duct calculi (GE, Surg).

This is a prospective randomised study, admitting patients with documented CBD stones, to evaluate the impact of pre-operative ES on the incidence of CBD exploration and its complications at the time of cholecystectomy. Patients are randomised into conventional treatment (cholecystectomy + CBD exploration) and ES followed by cholecystectomy and per-operative cholangiography. The study so far in 30 patients indicates that endoscopic sphincterotomy followed by cholecystectomy is better as it decreases the operative time, morbidity, hospital stay and recurrent CBD stones.

Screening of squamous cell carcinoma of oral cavity for

human papilloma virus. (Microbiol, Surg)

Several human viruses have been shown to have oncogenic potential. Of these, human papilloma virus has been associated with genital, skin, laryngeal, oral and esophageal carcinoma.

Oral carcinoma is amongst the most common malignancies in the Indian population. Tobacco has been implicated as one of the causative agents in oral carcinoma. Virus and tobacco may act as effector - initiator - promotor in oral carcinoma.

The study proposes to screen the carcinomatous tissue of the patients with oral cancer for human papilloma virus. Screening of the tissues for HPV will be done with DNA-DNA hybridization technique. Biopsies from 17 patients with oral cancer have been screened with Dot-blot technique and 11 have been found to be positive for HPV.

Pancreatic islet transplantation : Utility of ductular obstruction and exocrine atrophy model (Endocrin, Microbiol, Path, Physiol, Surg)

Induction of 'silent ' exocrine atrophy (and endocrine 'enrichment ') in pancreatic grafts following ductular blockade, may have a useful role in human diabetes transplantation therapy, by circumventing the currently elusive islet isolation/purification protocols. To explore this potential, pancreatic isografts were performed in 12 pairs of inbred Wistar/NIN rats. Donor pancreatectomy was performed after distal clamping and cannulation of common bile duct and injection of 0.5 ml polyacrylamide gel ('blocked n=7) or normal saline ('unblocked' n=5) respectively. One to 2mm fragments of the resulting mildly distended pancreas were transplanted into 2 sites (renal capsule and subcutaneous iliac fossa) of each recipient. Post operative biopsies of the transplanted grafts (unilateral nephrectomy and iliac fossa biopsies) revealed macroscopic and microscopic evidence of necrotising pancreatitis in

both recipient groups, at both sites (histiocytic and giant cell infiltration, fat necrosis and focal calcification, with destruction of exocrine and endocrine cells) after as early as 1 and 3 weeks. Possible detrimental factors include, volume and pressure of ductal injection and graft sites (confined spaces); biocompatibility of the material used for ductular blockade may also be important.

Screening of squamous cell carcinoma of the skin, esophagus and anal canal for human papilloma virus (HPV) (Microbiol, Surg)

Samples have been taken from 14 cases of squamous cell carcinomas: esophagus-8, skin-5 and anal canal -1. The samples are being studied by DNA-DNA hybridisation for the presence of HPV.

Autonomic dysfunction in hereditary ataxias (NSC, Physiol):

A project to study the autonomic dysfunction in hereditary autosomal dominant ataxias has been recently started. The results are expected to be ready by middle of next year.

Incidence of mitral valve prolapse (MVPS) in migraine (CTC, NSC)

A clinical study of patients with migraine has been undertaken to find out the incidence of MVPS in this group of patients. Fifty-six patients have been entered in the study.

Incidence of patent foramen ovale in stroke in Young (CTC, NSC)

Patients of stroke at less than 40 years of age are being studied for the incidence of patent foramen ovale in this group of patients by echocardiography.

Characterization of circulating immune-complexes in patients with rheumatic fever, rheumatic chorea and rheumatic heart disease with special reference to neurone-blinding antibiodies :(CTC, NSC)

A pilot study has been started in collaboration with the department of cardiology. Four patients have been entered in the study.

A prospective study of nervous system involvement in patients with systemic lupus erythematosus : (NSC, Med.)

Twenty-five consecutive patients have so far been entered in the study. Common nervous system features include epilepsy, vacular headache, fine postural tremor and distal sensory polyneuropathy.

Cardiovascular abnormalities in severe head injury patients: (NSC, CTC)

Patients with GCS 8 or below have been studied. None of the patients had a surgically significant intracranial lesion. A Swan-Ganz catheter was introduced under radiographic control and their cardiovascular parameters recorded. It revealed a high cardiac output varying from 4.8 L/min to 12.4 L/min. Twenty four hour metanephrines were also measured. B blockers were used in cases with increased heart rate.

Neuroepidemiology (NSC, Com. Med.)

A study is being conducted in neuroepidemiology in the rural community of villages around Ballabgarh (Haryana). This is a continuing research project. Thirteen villages with a population of 55,000 have been surveyed. The data is now being analysed.

Role of CT scan in unilateral sensorineural (SN) hearing" (NSC, Otorhino)

48 cases of unilateral SN hearing loss were subjected to high resolution computed tomography of the temporal bone. In 41 cases an air-contrast cisternomeatography was carried out. Only one of these cases showed a tumour. Anomalous vascular loops at the porus acousticus or inside the IAC were seen in 21 cases. Of the 21 such loops 15 were seen on the affected side, Thus it can be assumed that they are an important cause of symptoms like sensorineural hearing loss, tinnitus and dizziness. 7 cases had SN loss due to a head trauma which was associated with a facial palsy in 4 cases. A fracture line could be delineated in 6 of these cases - transverse in 3 and longitudinal in 3 cases.

"The role of CT scan in endolymphatic sac surgery"(NSC, Otorhino)

A new surgical approach has been developed for a neovascularisation of the endolymphatic sae by ENT department. So far 14 cases have been studied and upto 1 year follow up CTs were done. In 12 cases the revascularizing muscle pedicle was seen intact upto 6 months after surgery . In two cases this graft was not seen in follow up. In no case regeneration of bone in mastoid was seen upto 1 year follow up.

Tubercular status of CSR (Microb, RPC)

Central serous retinopathy is a disease of unknown aetiology. Therapeutic response in some cases by anti tubercular treatment & experimental production of central macular odema is a presumptive evidence of it being tuber cular in aetiology. The clinical study with different types of C.S.R. patients has been taken up by doing recent immunology test like SAFA in these case to show the incidence of tuberculosis in these cases. The project is still continuing.

Biochemical studies on the role of calmodulin in human breast tumours (Rep. Biol., Surg)

Calmodulin concentrations in soluble and particulate fractions of normal and tumour (44 cases) breast tissues were measured by densitometric scanning of electrophoresed gels. The results showed that the ratio of soluble calmodulin to the total calmodulin levels in cancer was more than the normal and the mean difference was statistically significant ($P < 0.001$). As opposed to this, the ratio of particulate to the total calmodulin was compared in normal and tumour tissues. The tumour breast tissue showed a lower ratio of particulate calmodulin and the observed mean difference was statistically significant ($P < 0.001$). The total calmodulin levels in breast tumor was correlated with estrogen receptor concentrations in 30 cases. Correlation analysis showed a correlation of $r = 0.802$. Experiments are in progress to study the enzymes involved in DNA synthesis with respect to calmodulin activity.

Role of immunosuppressive factor(s) in pregnancy (Ob & Gyn, Rep. Biol)

Serum from different trimesters were pooled and de complemented at 50 C for 30 minutes. The pooled sera were treated with different molarities of ammonium sulphate for protein precipitation. Six fractions were obtained after precipitation and were designated as fraction numbers 1,2,3,4,5 and 6. The above fractions were tested for their suppressive activity on mitogen induced lymphocyte transformation test. Only fraction numbers 3 and 4 showed significant suppression when compared to other fractions. The active fractions were pooled and then loaded on DEAE-Trisacryl ion exchanger for further purification and eluted with 0.4M sodium chloride gradient. Five peaks were obtained after ion exchange elution. Further studies will be done to analyse the suppressive effect of these protein peaks and to resolve the various components of the peaks.

Studies on the biliary glycoprotein in human hepatic bile (GE, Rep. Biol)

Glycoprotein as a component of mucin in most of the mucin secreting epithelium has an important physiological function. To characterize the nature of the glycoprotein secreted into the bile, the T-Tube hepatic bile was collected and analysed by Sepharose - 4B gel filtration chromatography. The specific estimation of glycoprotein by periodic acid Schiff reagent revealed that the bile contains two glycoprotein components;; one of high molecular weight above one million dalton and another in the range of 70,000 to 90,000 dalton. Further characterization of the high molecular weight glycoprotein is in progress.

Mental disorders in rural school children (Com. Med., Psychiat)

Teachers are trained and then their help is taken in identifying mental disorders in school children, with the help of Children's Behaviour Questionnaire (Rutter).

Prevalence of common neurological disorders in a rural community (Com.Med., NSC, NIH. Bethesda USA)

A rural population of 30,000 is being screened with the help of a questionnaire. Twenty thousand people have already been screened and examined by specialists.

Conventional radiology. CT and intravenous DSA in primary musculo-skeletal tumours (Orthoped, Rad. Diag.)

11 patients of bone tumor were subjected to conventional radiography and computerized tomography. 9 cases underwent intravenous DSA. Study is under progress.

Imaging of orbital space occupying lesions with US and late generation CT Scanner with clinico-pathological correlation. (Rad-diag, RPC).

10 patients have been studied till now. The preliminary results indicate that CT is superior in defining the relationship of the mass to adjacent structures and the extent of the lesion.

US & CT evaluation of pancreas in young diabetics. (Radio Diag., Endocrin)

25 patients have been evaluated by US and CT image morphology in young diabetics. The study is still in progress. Data is not yet analysed.

Role of computerized tomography in the management of parapharyngeal tumours. (Radio Diag., Otorhino)

14 patients have been evaluated so far. Of these, 4 had benign neurogenic tumour, 3 malignant tumour, one carotid body tumour, one plasmacytoma of hyoid bone, one bronchial cyst and metastatic lymph node in 1. CT was found to be a very useful modality in evaluating nature, extent and bone changes in parapharyngeal mass lesion, for proper management.

A study of correlation of operative findings, FNAC, US radio-nuclide scanning and histopathology in solitary thyroid nodule (Radio-Diag., Surg, Nuc Med.)

30 patients have been studied so far. Ultrasonography has been found to be an useful modality to detect small nodules, even if they are not suspected clinically. The study is in progress to correlate ultrasound image morphology with histology.

Role of CT scan in the preoperative staging of carcinoma of oesophagus. (Radio-Diag., Surg)

20 patients have been studied. The preliminary results indicate that peri-oesophageal spread and involvement of the aorta are fairly accurately predicted while involvement of the tracheobronchial tree and the pericardium are difficult to be accurately assessed on CT.

Role of cranial CT in children with acute leukaemia. (Radio-Diag., Paediat)

Cranial CT is being performed prior to and after treatment in patients suspected to have CNS leukaemia. 20 patients have been evaluated for base line study. No significant abnormality was found except for changes of mild degree of cerebral atrophy in few and intracranial bleed in one patient. follow up CT scan is necessary to detect late sequelae.

Comparative evaluation of US, CT and scintigraphy in hepatic metastases : A prospective study (Radio.-Diag., Nuc. Med.)

30 patients have been evaluated by the three imaging modalities, all being performed within a week. The preliminary results indicate higher sensitivity of CT over US and scintigraphy.

Doppler blood flow wave-forms in the foetal aorta in normal and hypertensive pregnancies. (Radio-Diag., Obst. & Gynae)

25 normal pregnant women and 10 hypertensive pregnant women in third trimester of pregnancy were studied. The peak velocity, end-diastolic velocity, mean velocity, blood flow wave forms were evaluated. The results indicate that irrespective of normal or hypertensive pregnancy, if IUGR is present, the end-diastolic velocity is reduced in the foetal aorta.

A study of the physical growth, skeletal maturity (skeletal age) and psychological assessment at preadolescence and adolescent in relation to the nutritional status in urban slum localities of Delhi.
(Radio-Diag. Pediat)

More than 500 children had their X-rays for the assessment of bone age by the method of Tanner and Whitehouse (TW2). A large number of children will need to be radiographed before charts for normal Indian children can be made.

A study of the thyroid nodule using clinical status, thyroid isotope scan, ultrasound, FNAC, biochemical, antibodies and histopath for selected group. (Radio-Diag., Endocrin, Nuc. Med)

More than 50 cases have already been evaluated. Preliminary results show a high sensitivity of ultrasound to detect small, few mm sized nodules not suspected clinically or even on isotope study.

Chapter 7.3

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Budget

1988-89

Figures of expenditure (Rs. in lacs) for the year 1987-88 and 1988-89 (un-audited) and Budget Estimates for 1988-89, Revised Estimates for 1988-89 & Budget Estimates 1989-90 in respect of All India Institute of Medical Sciences, New Delhi.

S.No. Head/Sub-head	Actual expenditure		Budget estimates		Revised estimates		Budget estimates		Remarks
	1987-88	1988-89	1988-89		1988-89		1989-90		
			Plan	Non-Plan	Plan	Non-Plan	Plan	Non-Plan	
<u>AIIMS including Dr. R.P. Centre</u>									
A. <u>REVENUE</u>									
1. Pay & allowances including L.S. & Pen.Cont., Stipend etc.	1133.78	1354.56	74.00	1158.90	74.00	1310.90	110.00	1525.00	
2. Mach. & Equip.	475.32	234.43	240.00	48.00	240.00	48.00	210.00	47.00	
3. Mat. & Supply	794.80	959.99	11.00	775.70	11.00	775.70	40.50	775.65	
4. Maint. of Bldg.	66.53	78.52	-	75.00	-	75.00	1.00	77.00	
5. GPF/Pen. & other retirement benefits	102.45	153.41	-	73.00	-	91.00	-	110.00	
6. Deposit linked insurance scheme	0.31	0.24	-	0.40	-	0.40	-	0.20	
7. Recoverable advances	9.73	9.73	-	14.00	-	14.00	-	11.15	
8. Research	8.67	8.94	-	9.00	-	9.00	-	8.35	
9. Books & publication	12.35	14.02	-	12.00	-	12.00	-	12.00	
10. House Bldg. Advance	18.09	31.13	20.00	-	20.00	-	22.00	-	
11. Med. Edu. & Faculty Develop. Fund.	-	-	-	-	-	-	1.50	-	
Total (1-11)	2622.03	2844.97	345.00	2166.00	345.00	2336.00	385.00	2566.35	

B. CAPITAL	529.89	449.26 *	255.00	-	255.00	-	215.00	-	*A loan of Rs.200.00 Lacs taken from Banks for Purchase of Asiad Flats.
Total A & B	3151.92	3294.23	600.00	2166.00	600.00	2336.00	600.00	2566.35	
C.1. Super Specialities	89.56	651.76	500.00	90.00	500.00	90.00	500.00	92.60	
2. I.R.C.H.	40.75	92.59	25.00	42.00	25.00	62.00	25.00	69.05	
3. N.P.C.B.	4.12	10.76	6.00	-	6.00	-	3.00	-	
4. C.A.T.S.	7.37	33.04	70.00	-	40.00	-	70.00	-	
5. Drug De-addiction Centre	69.79	57.01	60.00	-	60.00	-	70.00	-	
6. AIE Exam.	74.85	40.00	40.00	-	40.00	-	10.00	-	
7. Evaluation of Studies under Dr. J.S. Bajaj	1.63	-	-	-	1.30	-	-	-	
Grand Total (A,B & C)	3439.99	4179.39	1301.00	2298.00	1272.30	2488.00	1278.00	2728.00	

STATEMENT SHOWING THE RECEIPT-EXPENDITURE AND ADJUSTMENT OF THE GRANTS
RECEIVED FOR SPECIFIC PURPOSES DURING THE YEAR 1988-89.

Sr. No.	Name of the scheme	Opening balance		Receipt	Total	Expenditure	Adjustment	Closing balance	
		Credit	Debit					Credit	Debit
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1.	Anonymous Donors Scholarship	3376.50	-	-	3376.50	-	-	3376.50	-
2.	Airforce Wives Welfare Association	75.00	-	-	75.00	-	-	75.00	-
3.	B.K. Banerjee	250.00	-	-	250.00	-	-	250.00	-
4.	Bhabha Atomic	-	4737.28	55000.00	50262.72	59641.00	(-)1900.00	-	11278.28
5.	Burnogh Welcome	480.89	-	-	480.89	-	-	480.89	-
6.	Bohringer & Knoll	1400.00	-	-	1400.00	-	-	1400.00	-
7.	Smt. Besanti Devi Scholarship	-	8871.97	-	8871.97	2574.00	-	-	11445.97
8.	Bhilai Steel Plant	500.00	-	-	500.00	-	-	500.00	-
9.	Biological Studies in Plastic Transplantation	6480.09	-	-	6480.09	-	-	6480.09	-
10.	Centre for Clinical Pharmacology	591442.16	-	-	591442.16	344092.00	-	247350.16	-
11.	Centre for Board of Secondary Education	10.00	-	480.00	490.00	480.00	-	10.00	-
12.	C.S.I.R.	-	19375.74	1371973.00	1178247.26	953874.00	(-) 29876.00	194497.26	-

13. C.S.I.R.(R.P.C.)	33215.38	-	18238.00	51453.38	26738.00	-	24715.38	-
14. C.F.T.C.(Common Wealth)	29277.70	-	-	29277.70	-	-	29277.70	-
15. C.C.R.I.M.H.	400.00	-	-	400.00	-	-	400.00	-
16. Cadila Lab.	7364.54	-	-	7364.54	-	-	7364.54	-
17. Centre for Diagestic Diseases	12054.24	-	-	12054.24	-	-	12054.24	-
18. Conference on Drug abuse	-	47439.47	374471.00	327031.53	178156.00	-	148875.53	-
19. C.D.I.R. Lucknow	-	10069.28	20000.00	9930.72	24000.00	600.00	-	14669.28
20. Cipla-Bombay	-	263.63	-	(-) 263.63	-	-	-	263.63
21. D.G.H.S.	-	174566.91	38227.00	(-) 136339.91	38921.00	-	-	175260.91
22. Directorate of Education H.P.	8267.00	-	-	8267.00	-	-	8267.00	-
23. D.G.H.S.(R.P.C.)	12875.00	-	-	12875.00	-	-	12875.00	-
24. Directorate of Education Mizoram	300.00	-	3420.00	3720.00	2220.00	-	1500.00	-
25. Directorate of Harijan & Social Welfare, Lucknow	11373.00	-	-	11373.00	-	-	11373.00	-
26. Directorate of Education Delhi.	26936.48	-	2040.00	28976.48	1780.00	6990.00	20206.48	-
27. Directorate of Education, Jaipur, Rajasthan	1056.10	-	-	1056.10	-	-	1056.10	-

28. Directorate of Education, Allahabad	-	5093.00	15074.00	9981.00	4974.00	-	5007.00	-
29. Directorate of Education, Poona	360.00	-	-	360.00	-	-	360.00	-
30. Directorate of Prohibition & Social Welfare, Bikaner	655.96	-	-	655.96	-	-	655.96	-
31. Directorate of Collegiate Education, Rajasthan	333.00	-	-	333.00	-	-	333.00	-
32. Directorate of Hr.Sec.Education Bhopal	1440.00	-	-	1440.00	-	-	1440.00	-
33. Directorate of Hr.Sec. Education Allahabad	-	5424.00	-	(-)5424.00	-	-	-	5424.00
34. Directorate of S/C & S/T, West Bengal	3146.00	-	-	3146.00	-	-	3146.00	-
35. Directorate of Social Welfare Delhi.	189060.75	-	-	189060.75	-	-	189060.75	-
36. Directorate of Public Instructions Scholarship	450.00	-	-	450.00	-	-	450.00	-
37. Directorate of Central council of Research in Yoga & Naturopathy	-	660.52	-	(-) 660.52	-	-	-	660.52

38. DTL Asiad '82	167132.76	-	-	167132.76				
39. D.S.T.	5459148.86	-	8085294.00	13544442.86	8833975.00	243397.00	4467070.86	-
39. Biotechnology (A) Deptt.	-	-	3620000.00	3620000.00	5857224.00	19414.00	-	2256638.00
40. D.S.T. (R.P.C.)	59796.96	-	-	59796.96	-	-	59796.96	-
41. Directorate of Hari- jan Kalyan (H.P.)	20429.00	-	-	20429.00	-	-	20429.00	-
42. Distt.Welfare Officer, Hazari Bagh.	1488.00	-	-	1488.00	-	-	1488.00	-
43. Distt.Social Welfare Officer, Naggur	-	45.00	-	(-) 45.00	-	-	-	45.00
44. Distt.Welfare Officer Chaibasa	-	1254.00	-	(-) 1254.00	-	-	-	1254.00
45. Distt.Welfare Officer Ranchi	1409.00	-	-	1409.00	-	-	1409.00	-
46. Distt.Welfare Officer, Monghyr.	-	495.90	-	(-) 495.90	-	-	-	495.90
47. D.P.I.Chandigarh	-	2777.00	-	(-) 2777.00	-	-	-	2777.00
48. D.P.I.Punjab	2899.00	-	-	2899.00	-	-	2899.00	-
49. D.P.I. Shillong	-	17.00	-	(-) 17.00	-	-	-	17.00
50. Dorabjee Tata Trust	1100.00	-	10200.00	11300.00	-	-	11300.00	-
51. Distt.Welfare Officer Buldani	1405.70	-	-	1405.70	-	-	1405.70	-
52. Distt.Welfare Officer Meghalaya	3206.90	-	-	3206.90	-	-	3206.90	-
53. Deptt. of Social Welfare, Delhi	-	55062.33	-	(-) 55062.33	-	-	-	55062.33

54. Deptt. of Social Welfare Delhi(R.P.C.)	16027.65	-	-	16027.65	-	-	16027.65	-
55. Deptt. of Social Welfare Officer Sikkim.	390.00	-	-	390.00	-	-	390.00	-
56. Divisional Social Welfare Officer, J&K	1900.00	-	-	1900.00	-	-	1900.00	-
57. Divisional Social Welfare Poona	312.00	-	-	312.00	-	-	312.00	-
58. Ethnor Limited.	5636.04	-	-	5636.04	-	-	5636.04	-
59. Electronic Commission	11749.11	-	-	11749.11	-	-	11749.11	-
60. Family Planning	952.41	-	-	952.41	-	-	952.41	-
61. Ford Foundation	-	22321.55	-	(-) 22321.55	-	-	-	22321.55
62. Family Planning (Foundation)	15487.32	-	-	15487.32	-	-	15487.32	-
63. Fair Deal Corpn.	-	42.72	-	(-) 42.72	-	-	-	42.72
64. Foreign Nations from Nepal.	-	8835.70	-	(-) 8835.70	-	-	-	8835.70
65. Hindustan Allumi Floride Emission, Central Board of Preventive & Water Polution.	-	7378.63	-	(-) 7378.63	-	-	-	7378.63
66. G.D. Jhangini Scholarship.	16071.25	-	-	16071.25	-	-	16071.25	-
67. Glaxo Laboratories	7579.80	-	-	7579.80	-	-	7579.80	-
68. Griffin Lab. Ltd.	10370.00	-	-	10370.00	-	-	10370.00	-
69. Geoffry Manners	-	2447.08	-	(-) 2447.08	-	-	-	2447.08

70. German Remedies	-	547.79	-	(-) 547.79	-	-	-	547.79
71. Gianke Charitable Trust (post Dectrol Fellow- ship)	5050.00	-	-	5050.00	-	-	5050.00	-
72. Hoechst Limited.	447.50	-	-	447.50	-	-	447.50	-
73. H.Abdul Habib Scholar- ship.	382.00	-	-	382.00	-	-	382.00	-
74. Hindustan Steel Ltd. Scholarship	-	300.00	-	(-) 300.00	-	-	-	300.00
75. XV International Congress of Paedia- trics	6942.00	-	-	6942.00	-	-	6942.00	-
76. I.C.M.R.	3626019.36	-	21272578.00	24998597.36	16510167.00	534448.00	7853982.36	-
77. I.C.M.R.(R.P.C.)	447062.37	-	404868.00	851930.37	562673.00	-	289257.37	-
78. I.C.D.S.	1976730.97	-	3446612.00	5423342.97	5502803.00	33900.00	-	113360.03
79. I.D.R.C.	2537.78	-	-	2537.78	-	-	2537.78	-
80. I.N.S.A.	-	41051.01	34515.00	(-) 6536.01	41209.00	790.00	-	48535.01
81. I.C.A.R.	6754.09	-	102700.00	109454.09	85056.00	23190.00	1208.09	-
82. I.C.A.R.(R.P.C.)	1097.41	-	-	1097.41	-	-	1097.41	-
83. I.C.C.S.R.	17925.95	-	-	17925.95	-	-	17925.95	-
84. I.C.C.R.	-	2738.00	-	(-) 2738.00	-	-	-	2738.00
85. I.D.P.L.	11501.53	-	-	11501.53	-	-	11501.53	-
86. I.C.C.I.	-	8701.66	-	(-) 8701.66	-	-	-	8701.66
87. I.A.R.C.	83610.88	-	-	83610.88	-	-	83610.88	-
88. I.N.I.S.	500.00	-	-	500.00	-	-	500.00	-

89. Indian Red Cross Society	5200.00	-	-	5200.00	-	-	5200.00	-
90. International Workshop Hepatitis (Raj.)	7614.09	-	-	7614.09	-	-	7614.09	-
91. Indian Schering Ltd.	3939.11	-	-	3939.11	-	-	3939.11	-
92. India Oxygen Ltd.	6870.78	-	-	6870.78	-	-	6870.78	-
93. International Seminar on Living State	-	99020.00	-	(-)99020.00	-	-	-	99020.00
94. J&K Scholarship	11406.59	-	-	11406.59	-	-	11406.59	-
95. Distt. Officer Adm. Jati, Haryana	1879.00	-	-	1879.00	-	-	1879.00	-
96. Kurukshetra University	1350.00	-	-	1350.00	-	-	1350.00	-
97. Khaliullah Mansoor & Orchestra.	7800.00	-	-	7800.00	-	-	7800.00	-
98. Karolinka Instt. of Stockholm, Sweden	8246.66	-	-	8246.66	-	-	8246.66	-
99. Khushi Ram Scholarship	70631.80	-	-	70631.80	-	-	70631.80	-
100. Lady Tata Memorial Fund.	6967.15	-	-	6967.15	-	-	6967.15	-
101. LEpra	432349.48	-	-	432349.48	-	-	432349.48	-
102. Lee Foundation	425.00	-	-	425.00	-	-	425.00	-
103. Lion's Club for Handicaped	-	3500.00	-	(-) 3500.00	-	-	-	3500.00
104. Ministry of Health & Family Welfare, N.D.	-	332449.10	458000.00	125550.90	414044.00	18000.00	-	306493.10
105. Ministry of External								

Affairs	108261.18	-	70000.00	178261.18	132301.00	-	45960.18	-
106.Ministry of Defence (R&D Project)	8699.88	-	-	8699.88	-	-	8699.88	-
107.M.R.C. Bombay	2467.81	-	93812.03	96279.84	79597	2100.00	14582.84	-
108.Ministry of Home Affairs	7645.58	-	-	7645.58	-	-	7645.58	-
109.Ministry of Education & Cultural Affairs	20507.32	-	-	20507.32	115736.00	-	-	95228.68
110.Ministry of Social Welfare.	396930.79	-	433258.00	830188.79	352217.00	15847.00	462124.79	-
111.Merck Sharpe and Dome	-	176.59	-	(-) 176.59	-	-	-	176.59
112.Maharishi Instt. of Creating Intalligence	1037.55	-	-	1037.55	-	-	1037.55	-
113. Martin and Harsha	1811.21	-	-	1811.21	-	-	1811.21	-
114. Metha Ram Bham Scholarship	-	150.00	-	(-) 150.00	-	-	-	150.00
115. Medical College,Amritsar Scholarship	900.00	-	-	900.00	-	-	900.00	-
116. Newzeeland Govt.Grant	6033.36	-	-	6033.36	-	-	6033.36	-
117. National Service Scheme (N.S.S.)	35109.91	-	35250.00	70359.91	18732.00	2300.00	49327.91	-
118. N.C.E.R.T.	96055.43	-	650800.00	746855.43	644900.00	-	101955.43	-
119. N.O.R.A.D. Project	132328.04	-	-	132328.04	100.00	-	132228.04	-
120. N.R.D.C. of India Ltd.	25902.32	-	4996.13	30898.45	-	-	30898.45	-
121. Non-Instt Estt.Scheme	1105235.35	-	951070.00	2056305.35	989519.00	55776.00	1011010.35	-
122. N.A.M.S.	-	42060.00	31200.00	(-) 10860.00	43200.00	-	-	54060.00

123. National Seminar on Training of Man power for Rural Rehabilitation & Disability Education	9857.70	-	-	9857.70	-	-	9857.70	-
124. National Instt. of Health & Social Defence	1212.75	-	-	1212.75	-	-	1212.75	-
125. Organon India Ltd.	6041.00	-	-	6041.00	-	-	6041.00	-
126. Smt. Prakash Meti Scholarship	2757.50	-	-	2757.50	1000.00	-	1757.50	-
127. Panna Necotam	1906.33	-	-	1906.33	-	-	1906.33	-
128. P.L. 480	-	33043.15	-	(-) 33043.15	104063.00	-	-	137106.15
129. Post Partum Programme	1318747.56	-	140000.00	1458747.56	842355.00	-	616392.56	-
130. Pfizer India Ltd.	-	856.00	-	(-) 856.00	-	-	-	856.00
131. Rajgarhia Charity Fund	29275.32	-	-	29275.32	-	-	29275.32	-
132. Rajgarhia Liver Research Unit.	528978.51	-	-	528978.51	99092.00	420.00	429466.51	-
133. R.T.C.	-	641320.41	-	(-) 641320.41	96177.00	-	-	737497.41
134. N.D.M. Biochemistry	1944.10	-	-	1944.10	-	-	1944.10	-
135. Post Partum Project	-	134684.01	92835.00	(-) 41849.01	14748.00	1650.00	-	58247.01
136. R.L. Agarwal Community Service Programme	698.68	-	-	698.68	-	-	698.68	-
137. Roche Products	427.60	-	-	427.60	-	-	427.60	-
138. Rockefeller Foundation	316500.66	-	-	316500.66	-	-	316500.66	-
139. Ranbaxy Pvt. Ltd.	-	103.90	-	(-) 103.90	-	-	-	103.90
140. Rallis India Ltd.	-	3582.96	-	(-) 3582.96	-	-	-	3582.96

141. Sarabhai Chemicals	6333.21	-	-	6333.21	4503.00	1900.00	-	69.79
142. Solar Heating Water System	161000.00	-	-	161000.00	-	-	161000.00	-
143. Seminar on Mental Health Problems	-	3512.75	-	(-) 3512.75	-	-	-	3512.75
144. Secretary Mizoram Board	396.00	-	-	396.00	1200.00	-	-	804.00
145. T.C.M. Grant	23372.64	-	-	23372.64	-	-	23372.64	-
146. S.K.F. India Ltd.	2476.71	-	-	2476.71	-	-	2476.71	-
147. Suhrid Geigy	2386.32	-	-	2386.32	-	-	2386.32	-
148. Salt Fortification	7632.38	-	-	7632.38	-	-	7632.38	-
149. Sandoz India Ltd.	10000.00	-	-	10000.00	-	-	10000.00	-
150. Shyamji Medhorial Trust	350.00	-	4930.00	5280.00	3280.00	-	2000.00	-
151. Tarawati Rangopal Scholarship	450.00	-	-	450.00	-	-	450.00	-
152. T.N.A. of India	-	82.26	-	(-) 82.26	-	-	-	82.26
153. Usha Kaul Scholarship	5000.00	-	-	5000.00	-	-	5000.00	-
154. United States Agency for International Development (New Horizon in Hosp. Management)	25000.00	-	-	25000.00	-	-	25000.00	-
155. UNICEF	-	19501.23	127627.11	108125.88	74010.00	3063.00	31052.88	-
156. U.G.C. Blook	7334.67	-	69650.00	76984.67	56773.00	1130	19081.67	-
157. Unichem Lab.	907.48	-	-	907.48	-	-	907.48	-
158. Upjchan Ltd.	-	3000.18	-	(-) 3000.18	-	-	-	3000.1
159. W.H.O. (Immunology)	25780.00	-	-	25780.00	-	-	25780.00	-

160. World Bank	625.53	-	-	625.53	-	-	625.53	
161. W.H.O.	1028058.05	-	3848108.00	4876166.05	1393334.55	73922	3408909.50	
162. W.H.O. (R.P.C.)	265117.39	-	927758.00	1192875.39	669156.00	-	523719.39	-
163. Workshop on Biomedical Engg.Reproduction & Research	200.00	-	-	200.00	-	-	200.00	-
164. Walter Bushnell	5933.33	-	-	5933.33	-	-	5933.33	-
165. Yogendra Yoga Foun- tion	1573.48	-	-	1573.48	-	-	1573.48	-
166. Zile Sainik Board Sch- olarship Bhatinda	798.50	-	-	798.50	-	-	798.50	-
167. Environment (Deptt. of Forest)	161729.51	-	267352.00	429081.51	164224.00	-	264857.51	-
168. Ministry of Human Re- sources & Development	265100.10	-	201227.00	466327.10	79507.00	-	386820.10	-
169. Steel Authority of India Scholarship	13709.97	-	2250.00	15959.97	1680.00	-	14279.97	-
170. Uganda Govt. (RPC) Scholarship	112350.00	-	-	112350.00	-	-	112350.00	
171. Shankuntala Lubhaya Scholarship	3996.00	-	2500.00	6496.00	4831.00	-	1665.00	
172. Director of Education (Hyderabad)	1300.00	-	-	1300.00	-	-	1300.00	-
173. Jagat Ram Sawhney Scholarship	-	42.00	-	(-) 42.00	5505.00	-	-	5547.00
174. Andaman Project Planning Commission	601373.00	-	600000.00	1201373.00	539716.00	43620.00	618037.00	-
175. DRD Project (Ministry								

Of Agriculture)	195887.00	-	-	195887.00	118378.00	5000.00	72509.00	-
176. Internationals Atomic Energy Agency	12925.00	-	-	12925.00	-	-	12925.00	-
177. Ministry of Science & Technology	16378.00	-	-	16378.00	-	-	16378.00	-
178. Dte.of Collage Ed.TVM	-	-	2000.00	2000.00	2000.00	-	-	-
179. IEC	-	-	535000.00	535000.00	114006.00	36090.00	389404.00	-
180. Ministry of Health	-	-	105756.00	105756.00	158943.00	9700.00	-	62887.00
181. National Inantt. of Immunology	-	-	100000.00	100000.00	40287.00	4500.00	55213.00	-
182. Orbit Projection (Indian Oil) (OPC)	-	-	100000.00	100000.00	98618.00	-	1382.00	-
183. S.A.F.A.	-	-	1350520.00	1350520.00	650162.00	40520.00	659638.00	-
	20631060.76	1921951.71	50081589.27	68790698.32	47158651.55	1209843.00	24744628.54	4322424.7

REVENUE RECEIPTS

Breakup of Budget Receipts (Estimates for the year 1988-89 & 1989-90) for All India Institute of Medical Sciences including Dr. R.P.Centre for Ophthalmic Sciences, New Delhi.

(Rs. in lacs)

<u>S.No. Head/sub-head</u>	Budget	Revised	Budget
	Estimates	Estimates	Estimates
	<u>1988-89</u>	<u>1988-89</u>	<u>1989-90</u>
1. College/Hostel dues	7.00	7.00	10.00
2. Rent & Water charges	14.00	14.00	16.00
3. Hospital receipts including EHS	121.20	118.20	118.00
4. Misc. Receipts	61.80	6.50	8.00
5. Recoverable Adv.	14.00	14.00	18.00
Total:	218.00	159.70	170.00

GRANTS & DONATIONS

GRANT-IN-AID FOR THE YEAR 1988-89

(Rs. in lacs)

<u>S.No. Head/sub-heads</u>	<u>Non-Plan</u>	<u>Plan</u>	<u>Total</u>
1. Institute(Main)	1930.00.	480.00 *39.00	2449.00
2. Dr. R.P.Centre	188.00	120.00	308.00
3. C.A.T.S.	-	40.00	40.00

4.	All India P.G. Exam.	-	40.00	40.00
* For V.V.I.P. Ambulance.				
5.	National Plan on control of Blindness.	-	6.00	6.00
6.	Superspecialites	90.00	500.00	590.00
7.	Drug-De-Addiction Centre	-	60.00	60.00
8.	Instt. Rotary Cancer Hospital	62.00	25.00	87.00
9.	Evaluation of studies under Dr. J.S. Bajaj	-	1.30	1.30
Total:		2270.00	1311.30	3581.30

THE MEMBERS OF THE INSTITUTE, A.I.I.M.S. NEW DELHI.

1. Shri Moti Lal Vohra, President
Minister of Health & Family Welfare,
New Delhi-110011.
(upto 8.2.89)

Shri R. N. Mirdha,
Minister of Health & Family Welfare,
New Delhi-110011.
(from 9.2.89)
2. Shri S.S. Dhanoa, Member
Secretary to the Govt. of India,
Ministry of Health & Family Welfare,
Nirman Bhavan, New Delhi.
(upto 2.10.88)

Shri R. Srinivasan,
Secretary to the Govt. of India,
Ministry of Health & Family Welfare,
Nirman Bhavan, New Delhi.
(from 3.10.88)
3. Dr. Krupasindhu Bhoi, M.P. Member
6, Windsor Place,
New Delhi-110001.
4. Prof. B. Ramachandra Rao, M.P. Member
7-1-214/12 Amirpet,
Hyderabad -500016.
(Upto 5.5.88)

Shri Mahendra Prasad, M.P.
2 Duplex Lane,
New Delhi. 110011
(From 6.5.88)
5. Shri Abdul Rashid Kabuli, M.P. Member
46, South Avenue,
New Delhi-110011.

6. Dr. G.K. Vishwakarma, Member
Director General of Health Services,
Govt. of India,
Nirman Bhavan, New Delhi-110011.

7. Dr. Moonis Raza, Member
Vice Chancellor,
University of Delhi,
Delhi-110007.

8. Prof. (Mrs.) Archana Sharma, Member
University of Calcutta,
35 Ballygunge Circular Road,
Calcutta-700019.
(Upto 1.1.89)

Dr. S.C. Pakrashi,
Director,
Indian Institute of Chemical Biology,
4 Raja S.C. Mullick Road,
Calcutta-700032.
(From 2.1.89)

9. Dr. M. Santappa, Member
No. 73 Third Main Road,
Kasthurba Nagar, Adyar,
Madras-600020.
(Upto 2.10.88)

Dr. D.J. Jussawalla,
B-21/22 Darshan Apartments,
Mount Pleasant Road,
Malabar Hills,
Bombay-400006.
(From 3.10.88).

10. Dr. P. Chandra, Member
CI/20 Ansari Nagar,
New Delhi-110029.
(Upto 2.10.88)

Dr. H.D. Tandon,
B-7/8 Safderjang Enclave,
New Delhi. 110016
(From 3.10.88)

11. Dr. Shamer Singh, Member
46, Teacher's Flats,
Banaras Hindu University,
Varanasi-221005
(Upto 2.10.88)

Dr. Balwant Singh Tung,
1 Chander Puri,
Taylor Road, Amritsar-143001
(From 3.10.88)

12. Dr. R.G. Pawar, Member
B-3 Professor's Quarters,
Medical College Campus,
Jamnagar (:Gujarat)
(Upto 2.10.88)

Dr. C.M. Habibullah,
Prof. & Head of the Deptt. of
Gastroenterology,
Osmania Medical College, Hyderabad.
(From 3.10.88)

13. Dr. N. Zaman, Member
Ambikagiri Nagar,
R.G. Barua Road,
Guwahati-24. Assam.
(Upto 2.10.88)

Dr. C.P. Tewari,
Dean,
M.G. Medical College, Indore.
(From 3.10.88)

14. Dr. B.S. Choubey, Member
West High Court Road,
Dharampeth, Nagpur.
(Upto 2.10.88)
- Dr.(Smt) Ramani Sivaraman,
55, Seventh Avenue,
Ashok Nagar, Madras-600083
(From 3.10.88)
15. Shri Anil Bordia, Member
Secretary, Department of Education,
Ministry of Human Resources Development,
Shastri Bhavan, New Delhi-110001.
16. Shri N.S. Bakshi, Member
Jt. Secretary (Financial Advisor)
Ministry of Health & Family Welfare,
Nirman Bhavan, New Delhi-110011.
17. Dr.(Mrs.)S. Bhargava, Member-Secretary
Director,
AIIMS, New Delhi-110029.
18. Shri R.K. Ahooja, Special Invitee
Jt. Secretary to the Govt. of India,
Ministry of Health & Family Welfare,
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